

APPENDIX 3-A

MURPHYS SANITARY DISTRICT

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APPENDIX 3-A-1

MURPHYS SANITARY DISTRICT

Preliminary Hydrogeologic Impact Assessment & Effluent Disposal Evaluation



Stantec

Technical Memorandum

Preliminary Hydrogeologic Impact Assessment and Effluent Disposal Evaluation Report

To:	Gary Ghio, PE Murphy's Sanitary District, Murphy's, California District Engineer	From:	Thomas W. Butler PG, CHG, CEG Stantec, Walnut Creek
Site:	Murphys Sanitary District Wastewater Treatment Facility, Murphys, California	Date:	August 27, 2012

PURPOSE

This technical memorandum has been prepared to document the results of the recently expanded (two quarters) groundwater and effluent quality monitoring and to evaluate the effluent disposal capacity potential associated with irrigating land recently acquired by the Murphys Sanitary District (District). The purpose of the disposal analysis is to document effluent disposal potential on the newly acquired land located adjacent to the current wastewater treatment and disposal facility (WWTF) and to support an upcoming Report of Waste Discharge and permitting with the Central Valley Region, Regional Water Quality Control Board. Also included in this memorandum is an assessment of potential salinity impacts to groundwater, associated with irrigation disposal of effluent on pasture.

MONITORING WELL SUMMARY AND GROUNDWATER ELEVATIONS

Four monitoring wells (MW-1 through MW-4) are currently located at the WWTF. The location of these wells with regards to typical groundwater elevation contours is depicted in Figure 1. As illustrated in Figure 1, monitoring wells MW-1 and MW-2 are located up gradient of the WWTF ponds, while MW-3 and MW-4 are generally located down to cross gradient of WWTF ponds. The monitoring wells were constructed by advancing a boring 10-feet beyond first significant groundwater, with the background (up gradient) wells being deeper and with their well bottoms at an elevation of approximately 50 to 100 feet lower than the down gradient (compliance) wells. Note that each of the monitoring wells was completed with 20 feet of screen, located at the bottom of the well.

The presence of shallower groundwater at down gradient monitoring locations MW-3 and MW-4 may be due in part to the accumulation of infiltrated wastewater and groundwater on top of competent bedrock interface that underlies more permeable surface alluvium and/or weathered bedrock. Water under this scenario may be transmitted laterally along this interface and to the

monitoring wells. In any case, it would appear that down gradient monitoring wells MW-3 and MW-4 intercept a different water bearing strata than of up gradient wells MW-1 and MW-2. A groundwater elevation time series chart is provided as Figure 2 for comparison, including recently measured (2nd Quarter 2012) pond water surface elevations. The construction details for the monitoring wells are further provided as Table 1 for reference.

Figure 1:
Groundwater Monitoring Well and Pond Locations with Groundwater Contours

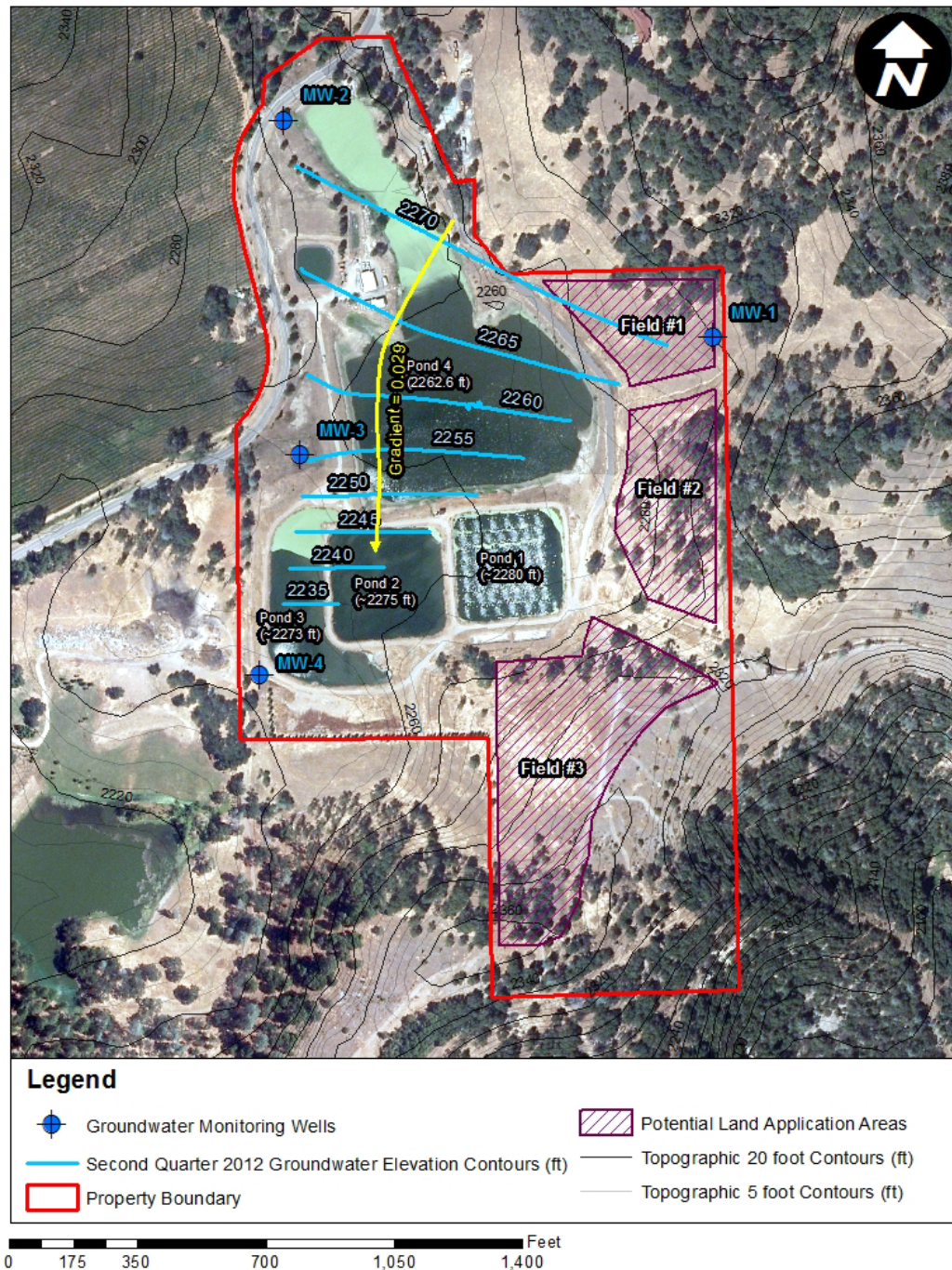


Figure 2:
Groundwater Elevation Time Series Chart with Pond Surface Elevation

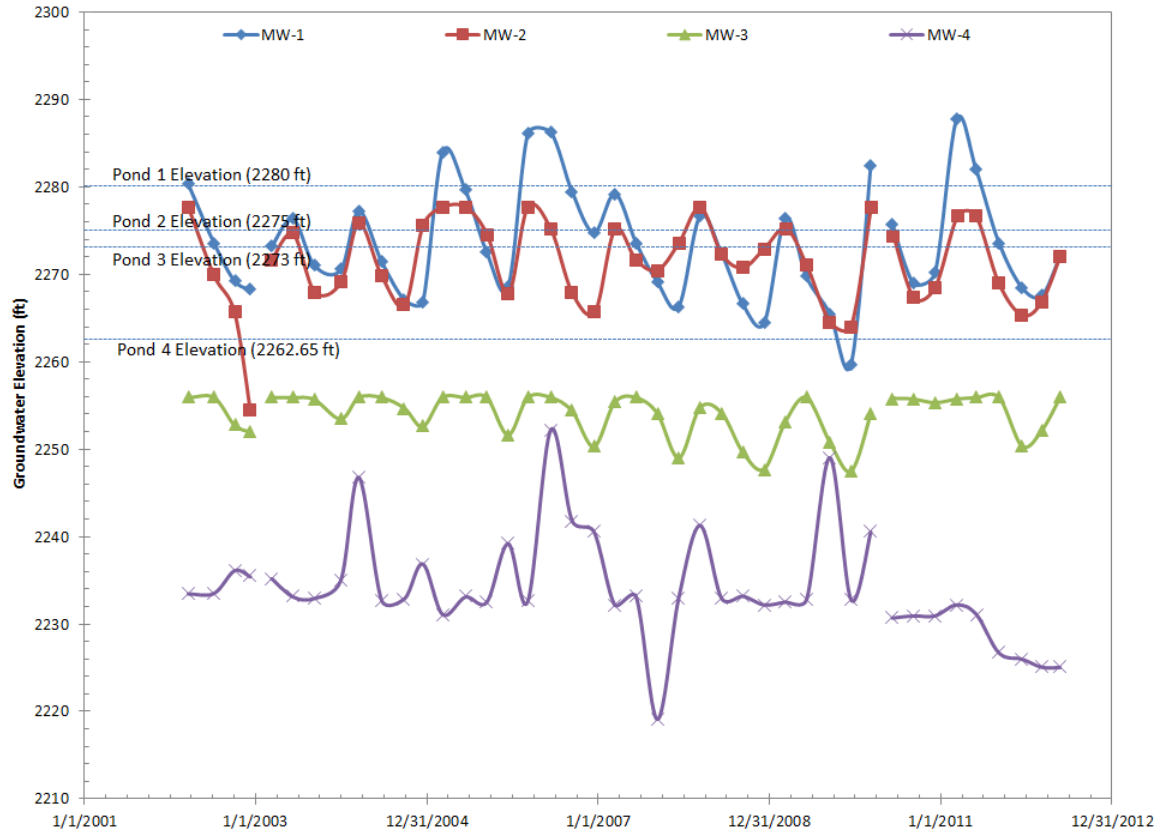


Table 1:
Existing Groundwater Monitoring Network Details

Monitoring Well	Estimated Purpose ^(a)	Depth of Well (ft, bgs)	Top of Casing Elevation (ft, NGVD29)	Well Bottom Elevation (ft, NGVD29) ^(b)	Depth of Sanitary Seal (ft, bgs)	Dec. 2010 Water Surface Elevation (ft, NGVD29)
MW-1	Background	135	2288.34	2153.34	107	2,270.17
MW-2	Background	180	2277.69	2097.69	153	2,268.52
MW-3	Compliance	50	2255.90	2205.90	24	2,255.32
MW-4	Compliance	50	2269.10	2219.10	24	2,230.93

(a) Based on topographic location; sanitary seal depth; confined nature of groundwater within the wells; and/or, elevation of groundwater compared to that of closest unlined wastewater pond. Actual purpose to be confirmed based on more detailed geoforensic analysis.

(b) Well bottom elevation estimated by subtracting top of casing elevation and reported well depth.

SUMMARY OF GROUNDWATER AND EFFLUENT QUALITY

Quarterly groundwater quality data were evaluated during the period extending from March 2002 to May of 2012. Recently collected expanded

general mineral chemistry was also evaluated during the past two quarters of 2012, including data collected from the most terminal treatment pond, Pond 4. These data were collected to provide a more rigorous assessment of baseline groundwater and effluent quality for supporting the upcoming report of waste discharge. Average water quality data for each of the four monitoring wells, including Pond 4, are presented as Table 2, while data from the more recent expanded monitoring, conducted during the past two quarters, are presented in Table 3. In computing longer term average water quality, censored data such as non-detects were replaced with the corresponding laboratory reporting limit. For coliform, where data are sometimes reported as greater than a maximum quantifiable value, the highest quantified value was used as part of the statistic.

As can be seen from Table 2, average groundwater and effluent quality is generally good and below water quality objectives for agricultural or potable use, with the exception of the following:

- Total coliform exceeding the basing plan objective at all wells and pre-disinfection process pond effluent;
- TDS exceeding the agricultural water quality objective at MW-4, despite effluent quality being in the range of background conditions at MW-1 and MW-2; and,
- Iron and manganese exceeding their respective secondary MCLs at both background (MW-1 and MW-2) and down gradient (MW-4) groundwater wells, including effluent monitored at Pond 4.

For several wells, average water quality data does not reflect more recent temporal changes in the quality of groundwater, most notably for MW-4, but also, to a lesser degree for MW-3. The most significant changes have been observed at MW-4 with EC, TDS, and sulfate increasing since about 2008, while alkalinity and pH have generally been decreasing. The most probable cause of the observed changes is from the percolation of water through sludge (sludge leachate) that has historically been stockpiled near the well. Monitoring well MW-3 has shown a relatively stable increase in nitrate with time since monitoring began in 2002. The cause of this steady increase may be due to percolation of oxidized wastewater from the ponds or a mixture of pond water and sludge leachate. Figures 3 and 4 present time series charts for TDS and nitrate, illustrating the stable conditions present at deeper background monitoring wells MW-1 and MW-2 and the temporal changes observed at shallower wells MW-3 and MW-4 since monitoring began in 2002, including the results of the recently expanded monitoring of Pond 4.

Table 2:
Summary of Average Water Quality in Groundwater and Wastewater

Well ID	Water Quality Goal	MW-1	MW-2	MW-3	MW-4	Pond 4
Gradient	--	Up	Up	Down	Down	--
Field pH (std. units)	6.5 – 8.4(a)	7.0	6.9	6.8	6.8	--
Field EC (µS/cm)	700(a) - 2200(s)	246	191	171	470	--
Field Temp (°C)	--	17.6	17.5	16.6	18.0	--
Field ORP (mV)	--	-114	24	557	257	--
DO (mg/l)	--	0.1	1.8	4.2	4.1	--
Total Coliform (MPN/100ml)	2.2(BP)	73	123	63	235	175
NO ₃ -N (mg/l)	10(p)	0.1	0.1	3.6	7.3	0.1
TKN (mg/l)	--	1.0	1.0	1.0	9.5	20.0
TDS (mg/l)	450(a) – 1500(s)	225	207	224	489	210
FDS (mg/l)	--	169	156	171	770	151
Ba (mg/l)	1(p)	0.203	0.211	0.233	0.920	0.045
Ca (mg/l)	--	52	29	15	74	20
Fe (mg/l)	0.3(s)	0.75	4.30	0.18	4.91	0.80
Mg (mg/l)	--	6	9	5	33	5
Mn (mg/l)	0.05(s)	0.230	0.420	0.005	0.463	0.335
K (mg/l)	--	0.8	2.0	10.8	10.5	10.0
Na (mg/l)	69(a)	10	13	16	31	33
Cl (mg/l)	106(a)	12	11	10	10	33
SO ₄ (mg/l)	250(s)	14	15	11	161	6
Total Alk. as CaCO ₃ (mg/l)	--	145	115	39	197	155
OH as CaCO ₃ (mg/l)	--	5	5	5	5	5
CO ₃ as CaCO ₃ (mg/l)	--	5	5	5	5	5
HCO ₃ as CaCO ₃ (mg/l)	--	145	115	40	205	155
Tannin and Lignin (mg/l)	--	0.14	1.17	0.12	0.36	1.50
Total Hard. CaCO ₃ (mg/l)	--	147	106	58	335	80
δ ² H (‰, VSMOW)	--	-63.5	-65.6	-58.2	-62.9	-69.9
δ ¹⁸ O (‰, VSMOW)	--	-9.46	-9.77	-7.43	-9.01	-9.37

Table 3:
Expanded General Mineral Monitoring Results

Well ID	MW-1	MW-1	MW-2	MW-2	MW-3	MW-3	MW-4	MW-4	Pond 4	Pond 4
Sample Date	3/7/2012	5/24/2012	3/7/2012	5/24/2012	3/7/2012	5/24/2012	3/7/2012	5/24/2012	3/8/2012	5/25/2012
Field pH (std. units)	6.8	6.9	6.9	6.9	5.6	5.7	6.4	5.6	--	--
Field EC (μ S/cm)	327	312	275	265	250	243	1212	1341	--	--
Field Temp ($^{\circ}$ C)	17.3	17.3	16.2	15.6	16.3	16.3	16.4	17.1	--	--
Field ORP (mV)	-109	-119	-12	59	543	570	261	253	--	--
DO (mg/l)	0.2	0.1	1.2	2.3	3.9	4.4	4.0	4.3	--	--
Total Coliform (MPN/100ml)	<2	<1.8	4.0	<1.8	4.0	<1.8	23.0	<1.8	240	110
NO ₃ -N (mg/l)	<0.05	<0.05	<0.05	<0.05	6.8	7.6	46*	58	<0.05	<0.05
TKN (mg/l)	<1	<1	<1	<1	<1	<1	2	<1	21	19
TDS (mg/l)	209	198	192	175	234	238	931	1130	228	191
FDS (mg/l)	184	154	171	141	196	146	691	849	181	120
Ba (mg/l)	<0.01	<0.01	0.040	0.026	0.280	0.300	0.650	0.093	0.045	0.044
Ca (mg/l)	51.0	50.0	28.0	28.0	16.0	17.0	120.0	150.0	19.0	20.0
Fe (mg/l)	0.75	0.74	7.60	1.00	0.33	<0.02	9.80	<0.02	0.99	0.61
Mg (mg/l)	4.8	5.0	7.6	8.0	4.7	5.3	58.0	70.0	4.4	4.6
Mn (mg/l)	0.23	0.23	0.44	0.40	0.01	<0.005	0.92	0.01	0.32	0.35
K (mg/l)	0.7	0.7	1.9	1.8	11.000	12.0	7.80	8.4	10.0	10.0
Na (mg/l)	9.8	9.7	12.0	13.0	15.0	16.0	30.0	32.0	35.0	31.0
Cl (mg/l)	8.0	15.0	2.8	2.8	22.0	21.0	22.0	21.0	35.0	30.0
SO ₄ (mg/l)	15	16	17	15	12	14	355	500	12	<0.5
Total Alk. as CaCO ₃ (mg/l)	140	140	114	118	42	42	90	60	148	162
OH as CaCO ₃ (mg/l)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
CO ₃ as CaCO ₃ (mg/l)	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
HCO ₃ as CaCO ₃ (mg/l)	140	140	114	118	42	42	90	60	148	162
Tannin and Lignin (mg/l)	0.17	<0.1	1.60	0.74	0.14	<0.1	0.35	0.36	1.60	1.40
Total Hard. CaCO ₃ (mg/l)	157	158	121	106	72	63	591	734	80	79
δ^2 H (‰, VSMOW)	-63.6	-63.3	-66.7	-64.4	-58.3	-58.2	-63.8	-62.0	-70.6	-69.1
δ^{18} O (‰, VSMOW)	-9.55	-9.36	-9.83	-9.72	-7.40	-7.46	-9.01	-9.01	-9.42	-9.31

*Reported as nitrate + nitrite.

Bold data indicates an exceedance of a water quality objective for potable or agricultural use.

Figure 3:
TDS Time Series Chart

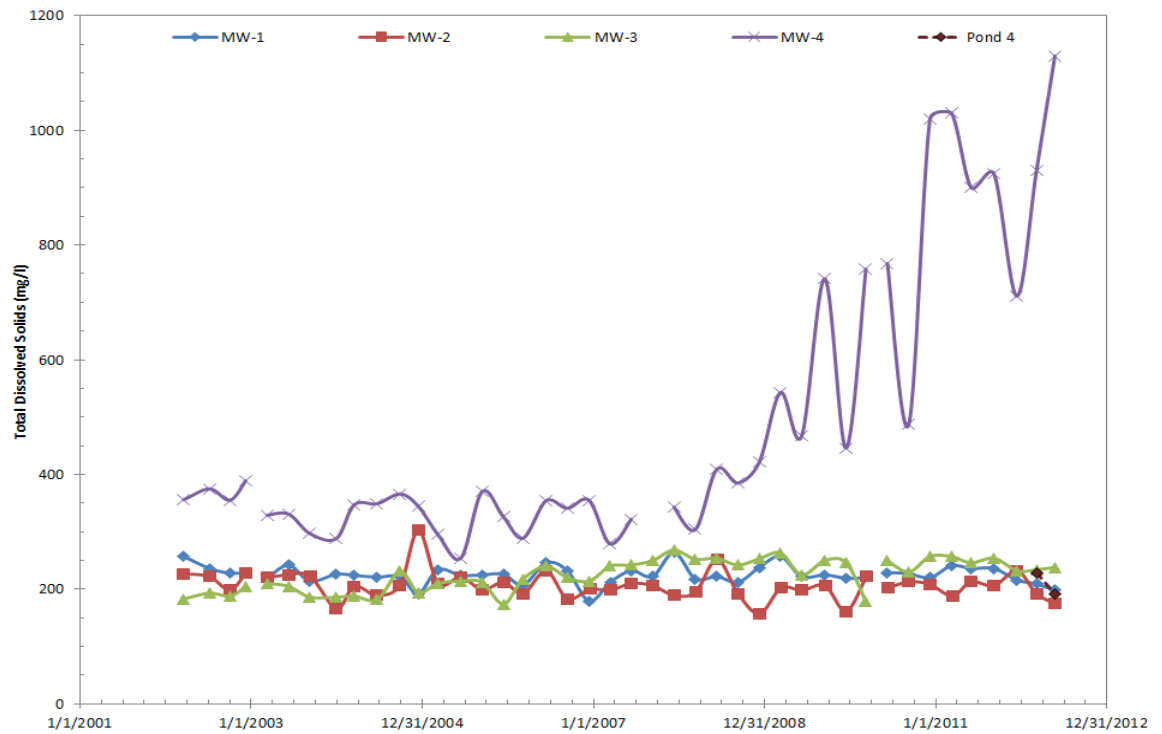
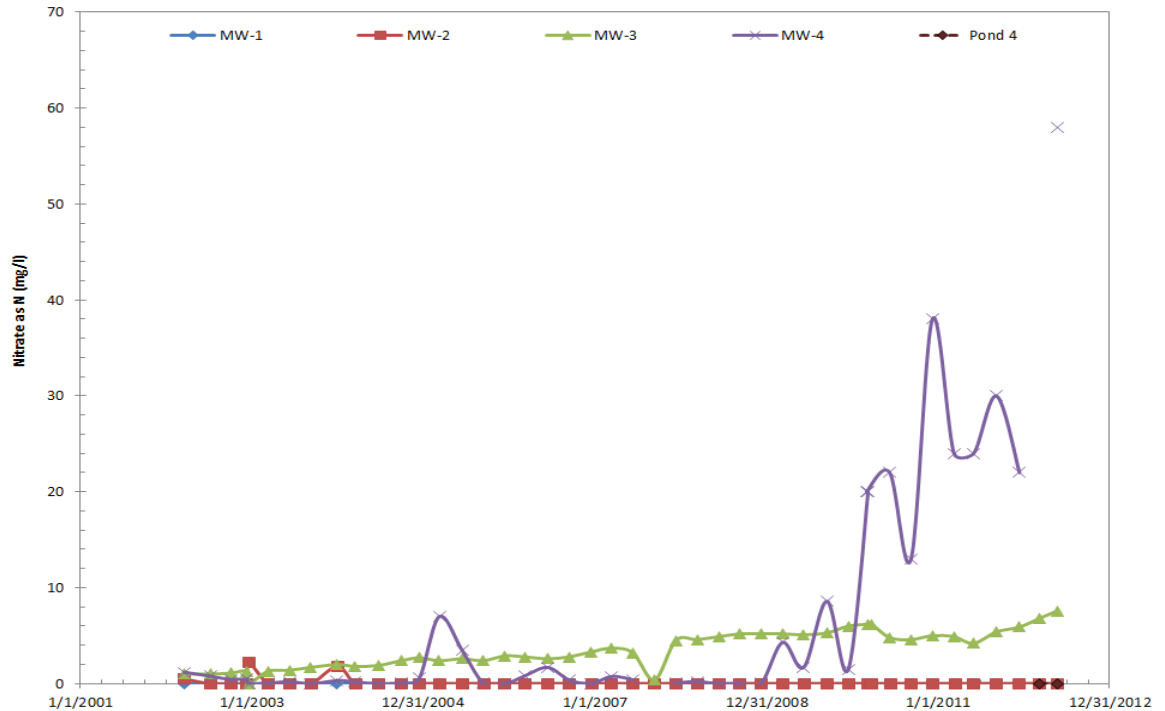


Figure 4:
Nitrate as N Time Series Chart



As previously stated, stockpiled sludge is the suspected source of changes in water quality at MW-4 and potentially MW-3. Accordingly, recently observed seeps from the sludge piles were sampled during April 2012 with elevated concentrations reported for EC (2270 $\mu\text{S}/\text{cm}$), TDS (2230 mg/l), and sulfate (1560 mg/l). pH was reported at a value of 4.2, while acidity (no alkalinity present) was reported at 110 mg/l. Of all the parameters assessed, sludge leachate exceeded water quality goals for potable or agricultural use for pH, total coliform, total dissolved solids, electrical conductivity, sulfate, nitrate, ammonia, cadmium, cobalt, iron, nickel, and zinc. Most of the exceedances for metals are likely due to the acidic conditions present within the stockpile. The mechanism for the elevated salts and low pH in sludge leachate is most likely due to the oxidation of sulfides within the sludge pile, which favors the dissolution of many other common minerals, further increasing the reported total dissolved solids concentration. The results of the April sampling of sludge leachate are summarized in Table 4.

In addition to the sludge leachate, water was observed flowing out of the WWTF storm drain, however no water was observed flowing into the drain. Samples were subsequently collected on April 6th, 2012 in order to assess if water quality impacts associated with the sludge were evident at this location. The results are also summarized in Table 4. Of the parameters assessed, only manganese and total coliform exceeded water quality objectives in the sample collected from the WWTF storm drain.

Piper and Durov diagrams were prepared (Figures 5 and 6, respectively) in order to further assess the probable sources of impacts at monitoring wells and the WWTF storm drain water, using recently collected expanded general mineral chemistry. Piper and Durov Diagram are two common methods of graphically assessing and grouping waters of similar chemistry and assessing potential mixing relationships between various sources. A mixing model was developed in order to evaluate groundwater composed of a mixture of Pond 4 and sludge leachate, illustrated as a blue dashed line on Figures 5 and 6. Furthermore, a mixing model between background groundwater quality at wells MW-1 and MW-2 and wastewater Pond 4 is illustrated as a purple dashed line in Figure 5 and 6.

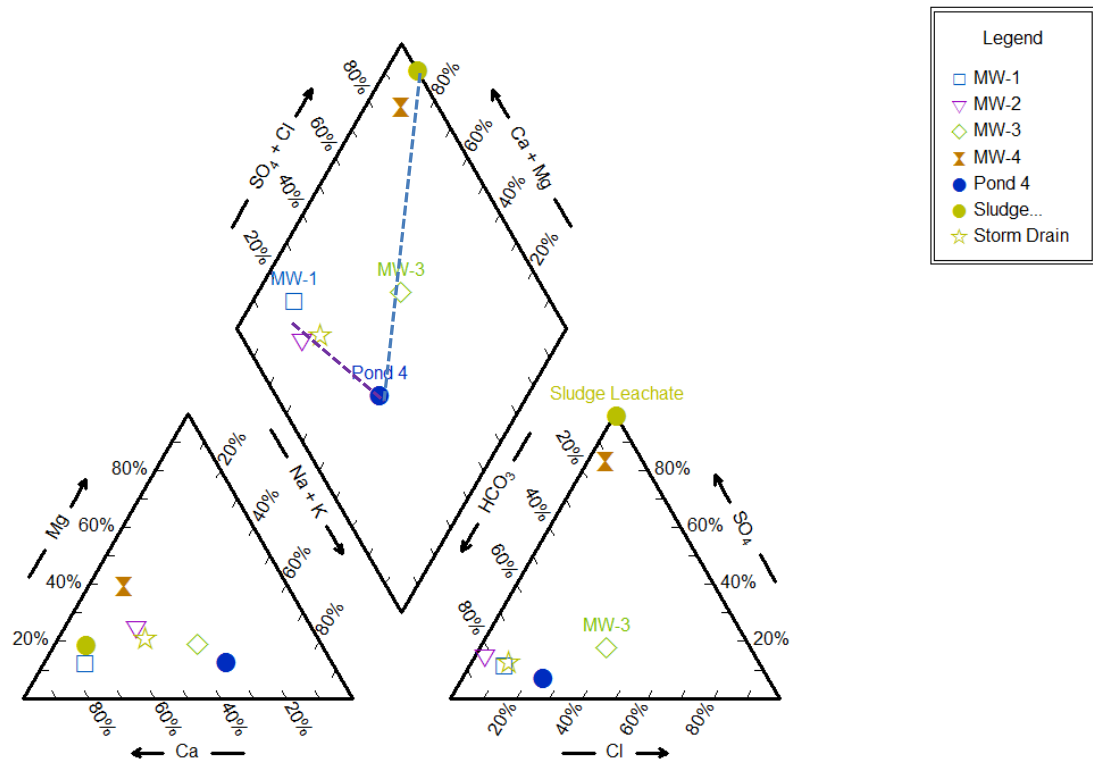
As can be seen from these figures, monitoring well MW-4 is chemically similar to sludge leachate, suggesting percolation of leachate as one of the primary sources of water and impacts at this well. The remaining fraction of groundwater at MW-4 could be derived from Pond 4 and/or background sources. Conversely, monitoring well MW-3 is chemically most similar to Pond 4 water, where minor contributions of contaminants such as nitrate may be derived from sludge leachate, as suggested by the mixing line trends between these two sources. WWTF storm drain water appears most similar to background groundwater well MW-2 and may have a contribution from the wastewater ponds, as suggested by the higher concentrations of nitrate at 3.1 mg/l (derived from the oxidation of ammonia or organic nitrogen, e.g., TKN) and the mixing line trend.

Table 4:
Sludge Leachate and WWTF Storm Drain Sample Results

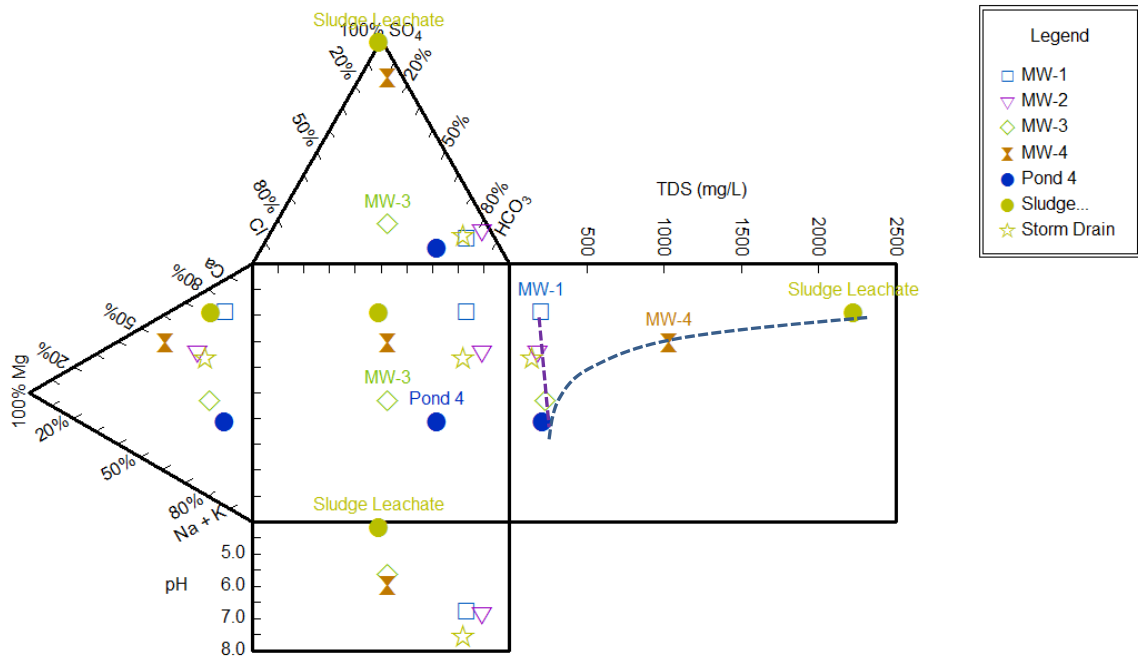
Parameters	Water Quality Objective	Sludge Leachate		WWTF Storm Drain
		3/23/12	4/3/2012	4/6/2012
pH (std. units)	6.5 – 8.4(a)	--	4.2	7.6
$\delta^2\text{H}$ (permil, VSMOW)	--	--	-58.3	-60.3
$\delta^{18}\text{O}$ (permil, VSMOW)	--	--	-8.66	-8.92
Acidity (mg/l)	--	--	110	--
HCO_3 as CaCO_3 (mg/l)	--	--	--	64
CO_3 as CaCO_3 (mg/l)	--	--	--	<5
OH as CaCO_3 (mg/l)	--	--	--	<5
Total Alk. as CaCO_3 (mg/l)	--	--	--	64
Total Coliform (MPN/100ml)	2.2 (BP)	--	>2400	900
Fecal Coliform (MPN/100ml)	--	--	50	300
Tannin & Lignin (mg/l)	--	--	6.4	0.51
Hardness as CaCO_3 (mg/l)	--	--	908	70
TDS (mg/l)	450(a) – 1500(s)	--	2230	146
FDS (mg/l)	--	--	1510	97
E.C. ($\mu\text{S}/\text{cm}$)	700(a) – 2200(s)	--	2270	193
TKN (mg/l)	--	151	150	<1
Cl (mg/l)	106(a)	--	16	5.8
SO_4 (mg/l)	250(s)	--	1560	8
$\text{NO}_2\text{-N}$ (mg/l)	1(p)	--	0.09	0.05
$\text{NO}_3\text{-N}$ (mg/l)	10(p)	87	23	3.1
$\text{NH}_3\text{-N}$ (mg/l)	1.5(T&O)	140	150	<0.5
Sb (mg/l)	0.006(p)	--	<0.0005	<0.0005
As (mg/l)	0.01(p)	--	0.0023	<0.0005
Ba (mg/l)	1(p)	--	0.019	0.091
Be (mg/l)	0.004(p)	--	0.0029	<0.0005
Ca (mg/l)	--	--	260	18
Cd (mg/l)	0.005(p)	--	0.054	<0.00025
Cr (mg/l)	0.05(p)	--	0.0024	<0.0005
Co (mg/l)	0.05(a)	--	0.11	<0.0005
Cu (mg/l)	1(s)	--	0.18	0.0025
Fe (mg/l)	0.3(s)	--	2.8	0.036
Pb (mg/l)	0.015(p)	--	0.0019	<0.005
Hg (mg/l)	0.002(p)	--	<0.000025	<0.000025
Mg (mg/l)	--	--	40	4.3
Mn (mg/l)	0.05(s)	--	0.011	0.061
Mo (mg/l)	0.01(a)	--	<0.0005	<0.0005
Ni (mg/l)	0.1(p)	--	0.27	0.0021
K (mg/l)	--	--	26	3.2
Se (mg/l)	0.05(p)	--	0.0012	<0.0005
Na (mg/l)	69(a)	--	27	8.7
Ag (mg/l)	0.1(s)	--	0.00073	0.00026
Tl (mg/l)	0.002(p)	--	<0.0005	<0.0005
V (mg/l)	0.1(a)	--	0.0047	0.0014
Zn (mg/l)	5(s)	--	16	0.089

Bold date exceeds water quality objective for potable or agricultural use.

**Figure 5:
Piper Diagram**



**Figure 6:
Durov Diagram**



EFFLUENT DISPOSAL EVALUATION

The gross acreage of land acquired by the District for irrigation disposal is about 20 acres. Based on a preliminary assessment of this land through a site visit and review of aerial photography suggests that about 11.4 acres of this land is suitable for irrigation, maintaining surface drainage (tail water control) toward existing District WWTF features, including the facility's ponds. The irrigable area is illustrated as a purple hatch on Figure 1. Soils underlying the newly acquired disposal land are thin and underlain by shallow bedrock, where deep percolation potential is assumed to be minimal. Small scale percolation tests such as those utilizing soil infiltrometers or Guelph Permeameters will likely over estimate longer term percolation potential at the site and thus their utility in evaluating site conditions is considered limited. Accordingly, effluent disposal potential was evaluated using published ET data, crop demands, and precipitation data for the area.

Irrigation disposal potential was calculated by taking the difference between evapotranspiration and precipitation under average and estimated 1-100 year climate precipitation seasons, including additional irrigation water to account for deep percolation (leaching fraction). As previously stated, deep percolation is expected to be minimal and for the purpose of this preliminary evaluation assumed to be only 5%. During months when precipitation exceeded evapotranspiration potential the overall irrigation disposal potential for that month was assumed to be zero. In reality some irrigation disposal may be feasible during winter wet months and thus these assumptions are considered conservative. Accordingly, wastewater disposal potential on the 11.4 acres of irrigable land was estimated to be 9.3 MG during 1-100 precipitation year and 11.5 MG during average year conditions.

One variable that can significantly affect the amount of water that may be disposed of on an annual basis is deep percolation. As previously stated, for the purpose of this assessment deep percolation was assumed to be 5% of the volume of applied water. However, more typical leaching fractions in irrigated agricultural on alluvial soils range from values of 15 to 25%. Accordingly, the disposal capacity may be higher. Conversely, should the underlying bedrock be more impervious than assumed, disposal potential could be somewhat less.

Although this analysis summarized above provides the basis for design, it is recommended that the disposal capacity be further evaluated during a 1-year full-scale pilot test. During this pilot testing period the volume of wastewater applied to land should be monitored and reported weekly, along with climate variables (ET and precipitation) and the volume of tail water collected and recirculated within the disposal system. These pilot test data can then be used to revise the water balance calculations in order to confirm or refine the actual disposal potential of the site.

Appendix A contains the irrigation disposal water balance calculations for average and 1-100 year precipitation seasons for reference.

SALINITY IMPACT ASSESSMENT

Salinity impacts to groundwater associated with wastewater disposal was modeled assuming that wastewater is applied at agronomical rates not exceeding the amount required by the crop, determined by taking the ET potential plus excess water applied for the leaching fraction (in this case 5%), less the amount of precipitation. The total concentration of dissolved salts (expressed as total dissolved solids) was based on historical monitoring and found to be about 216 mg/l for background groundwater, 229 mg/l for treated wastewater, and 15 mg/l for rainwater. Based on these assumptions the computed average annual concentration of TDS in groundwater underlying the disposal area, during both average and 1-100 precipitation years, was found to be 633 mg/l and 487 mg/l, respectively, both below 1000 mg/l, the secondary maximum contaminant level (MCL). Note that short term exceedances of the Secondary MCL may occur, particularly during the summer months.

The concentration of salts may be further reduced should additional capacity exist for deep percolation (leaching) or if excess water is applied to land. Appendix A contains the results of the groundwater salinity computations for reference. Note that the final computations results provided in Appendix A were based on a series of iterations where the last months TDS was used as the starting TDS of the subsequent water year. These iterations were continued until the TDS concentration stabilized and stopped increasing on an annual average basis.

RECOMMENDATIONS

Based on the assessment provided above the following is recommended:

- Removal of stockpiled sludge (currently on-going) and buffering of underlying soils with a base such as calcium carbonate or lime;
- Conduct a full-scale pilot test to confirm or revise the newly acquired land's capacity for irrigation disposal; and,
- Continue monitoring to assess the effects of sludge removal on water quality at MW-4 and potentially MW-3, as well as to assess potential groundwater impacts associated with irrigation disposal of effluent.

Stantec Consulting Services, Inc.													
Murphys Effluent Irrigation Disposal Assessment												Author	twb
Water Balance Projection, Average Year Annual Rain Event													
Input Data													
Wastewater Flow		Irrigation Disposal Area				Climate Factors							
Average Annual Influent Flow (Mgal/d)	0.00	Gross Area (acres)	20.0			1/100 Year Precipitation (In)						66.78	
Background Grounwater TDS	216	Irrigatable Area (acres)	11.4			1/100 Precipitation to Ave. Precipitation Ratio						1	
Wastewater TDS (mg/l)	229	Disposal Area Percolation Rate (in/day)	NA			Wet Season (OCT-APR) Evap/Ave. Evap Ratio						1	
Rain Water TDS (mg/l)	15	Estimated average soil thickness (ft)	2.0			Dry Season (MAY - SEP)Evap/Ave. Evap Ratio						1	
Excess Irrigation/Leaching Factor	0.05	Estimated Pore Volume of Soils (MG)	1.5			Pan Coefficient						Not Used	
Crop Data		Land Precipitation Collected (fraction)											
Kc Value (grazed pasture = 0.9 grass = 1.05)	1.0												
Perennial Grass Ash Content (%)	4.0												
Number of Cuts	2.0												
Dry Weight Yield (tons/acre)	6.0												
Dry Weight Stress Reduction Factor	0.2												
PARAMETER/MONTH	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Annual
Days in Month	31	30	31	31	28	31	30	31	30	31	31	30	365
Ave. Reference Evapotranspiration (in/mo)	3.72	2.10	1.55	1.55	2.24	3.10	4.50	5.89	7.20	8.06	7.44	5.70	53.4
Average Precipitation (in/mo)	1.90	3.94	5.79	6.28	6.01	5.56	3.12	1.39	0.30	0.03	0.11	0.47	34.9
Monthly to Average Annual Influent Flow Ratio													
Influent Flow (Mgal/d)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Calculations													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Annual
Evapotranspiration (in)	3.72	2.10	1.55	1.55	2.24	3.10	4.50	5.89	7.20	8.06	7.44	5.70	53.1
Precipitation (in)	1.90	3.94	5.79	6.28	6.01	5.56	3.12	1.39	0.30	0.03	0.11	0.47	34.9
ET Volume (MG)	1.15	0.65	0.48	0.48	0.69	0.96	1.39	1.82	2.23	2.49	2.30	1.76	16.4
Precipitation Volume (MG)	0.59	1.22	1.79	1.94	1.86	1.72	0.97	0.43	0.09	0.01	0.03	0.15	10.8
Estimated Salt Uptake (tons)	0.03	0.02	0.01	0.01	0.02	0.02	0.03	0.04	0.05	0.06	0.05	0.04	0.4
ET Disposal Potential (in)	1.92	None	None	None	None	None	1.45	4.74	7.26	8.45	7.72	5.51	37.0
Volume of Irrigation Disoposal (MG)	0.59	0.00	0.00	0.00	0.00	0.00	0.45	1.47	2.25	2.62	2.39	1.70	11.5
Excess Precipitation (MG)	0.00	6.83	15.75	17.57	14.00	9.14	0.00	0.00	0.00	0.00	0.00	0.00	63.3
Start TDS (mg/l)	633	716	527	289	229	229	229	303	509	796	1102	1361	Seas. Ave.
Final TDS (mg/l)	716	527	289	156	139	163	303	509	796	1102	1361	1537	633
Start TDS (mg/l)	618	697	511	280	229	229	229	298	497	777	1077	1329	Seas. Ave.
Final TDS if Harvested (mg/l)	697	511	280	150	137	160	298	497	777	1077	1329	1501	618

Stantec Consulting Services, Inc.													
Murphys Effluent Irrigation Disposal Assessment											Author	twb	
Water Balance Projection, 1-100 Year Annual Rain Event													
Input Data													
Wastewater Flow				Irrigation Disposal Area				Climate Factors					
Average Annual Influent Flow (Mgal/d)	0.00			Gross Area (acres)	20.0			1/100 Year Precipitation (In)				66.78	
Background Grounwater TDS	216			Irrigatable Area (acres)	11.4			1/100 Precipitation to Ave. Precipitation Ratio				1.81	
Wastewater TDS (mg/l)	229			Disposal Area Percolation Rate (in/day)	NA			Wet Season (OCT-APR) Evap/Ave. Evap Ratio				0.88	
Rain Water TDS (mg/l)	15			Estimated average soil thickness (ft)	2.0			Dry Season (MAY - SEP)Evap/Ave. Evap Ratio				0.95	
Excess Irrigation/Leaching Factor	0.05			Estimated Pore Volume of Soils (MG)	1.5			Pan Coefficient				Not Used	
Crop Data								Land Precipitation Collected (fraction)				0.90	
Kc Value (grazed pasture = 0.9 grass = 1.05)	1.0												
Perennial Grass Ash Content (%)	4.0												
Number of Cuts	2.0												
Dry Weight Yield (tons/acre)	6.0												
Dry Weight Stress Reduction Factor	0.2												
PARAMETER/MONTH	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Annual
Days in Month	31	30	31	31	28	31	30	31	30	31	31	30	365
Ave. Reference Evapotranspiration (in/mo)	3.72	2.10	1.55	1.55	2.24	3.10	4.50	5.89	7.20	8.06	7.44	5.70	53.4
Average Precipitation (in/mo)	1.90	3.94	5.79	6.28	6.01	5.56	3.12	1.39	0.30	0.03	0.11	0.47	34.9
Monthly to Average Annual Influent Flow Ratio													
Influent Flow (Mgal/d)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Calculations													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Annual
Evapotranspiration (in)	3.27	1.85	1.36	1.36	1.97	2.73	3.96	5.60	6.84	7.66	7.07	5.42	49.1
Precipitation (in)	3.44	7.13	10.48	11.37	10.88	10.06	5.65	2.52	0.54	0.05	0.20	0.85	63.2
ET Volume (MG)	1.01	0.57	0.42	0.42	0.61	0.84	1.23	1.73	2.12	2.37	2.19	1.68	15.2
Precipitation Volume (MG)	1.06	2.21	3.24	3.52	3.37	3.12	1.75	0.78	0.17	0.02	0.06	0.26	19.6
Estimated Salt Uptake (tons)	0.03	0.01	0.01	0.01	0.02	0.02	0.03	0.04	0.05	0.06	0.06	0.04	0.4
ET Disposal Potential (in)	None	None	None	None	None	None	None	3.24	6.63	8.00	7.23	4.80	29.9
Volume of Irrigation Disoposal (MG)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	2.05	2.48	2.24	1.49	9.3
Excess Precipitation (MG)	0.61	19.62	33.86	37.15	33.08	27.25	6.27	0.00	0.00	0.00	0.00	0.00	157.9
Start TDS (mg/l)	487	481	240	229	229	229	229	229	379	652	954	1209	Seas. Ave.
Final TDS (mg/l)	481	240	94	86	92	103	182	379	652	954	1209	1372	487
Start TDS (mg/l)	476	472	234	229	229	229	229	229	372	637	932	1180	Seas. Ave.
Final TDS if Harvested (mg/l)	472	234	91	85	91	102	179	372	637	932	1180	1338	476

APPENDIX 3-A-2

MURPHYS SANITARY DISTRICT

Report of Waste Discharge

**Murphys Sanitary District
Effluent Disposal Improvement
Project**

Report of Waste Discharge



October 2012



September 17, 2012

Ms. Anne Olson
California Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive #200
Ranch Cordova CA 95670

Subject: Report of Waste Discharge for Murphys WWTF

Dear Ms. Olson:

Enclosed is an abbreviated Report of Waste Discharge requesting that the Murphys Sanitary District's current Order (Order No. 5-00-264) be reopened and revised to allow spray irrigation of disinfected secondary effluent on approximately 11.4 acres of a 20-acre District-owned parcel contiguous to the existing wastewater treatment facility (WWTF). The purpose of these additional effluent disposal facilities is to act as a backup/redundancy/safety feature to the District's current firm effluent disposal/reclamation capacity provided by John Kautz Farms under Order No. R5-2007-0050.

The requested revision involves no change in permitted capacity, method of wastewater treatment, or effluent characteristics. As such, no revisions to Order No. 5-00-264 are believed to be necessary (from the District's perspective) other than allowing effluent disposal on the subject 11.4 acres. The effluent that would be applied to the 11.4 acres is from Pond 4, the same source of effluent used by John Kautz Farms. Effluent reclamation by John Kautz Farms under Order No. R5-2007-0050 will continue to be the District's preferred and primary means of effluent disposal, and the basis of the District's currently permitted capacity of 0.2 Mgal/d.

Please feel free to contact me at 209-754-1824 if you have any questions about this request, or if you need additional information.

Sincerely,

Murphys Sanitary District

A handwritten signature in blue ink, appearing to read "Gary Ghio", is located below the typed name.

Gary Ghio, PE, District Engineer

Attachments: Form 200, Site Plan, CEQA Document, Technical Support Document

Form 200



APPLICATION/REPORT OF WASTE DISCHARGE GENERAL INFORMATION FORM FOR WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT



I. FACILITY INFORMATION

A. Facility:

Name:			
Address:			
City:	County:	State:	Zip Code:
Contact Person:		Telephone Number:	

B. Facility Owner:

Name:		Owner Type (Check One)	
Address:		1. <input type="checkbox"/> Individual 2. <input type="checkbox"/> Corporation	
City:	State:	Zip Code:	3. <input type="checkbox"/> Governmental Agency 4. <input type="checkbox"/> Partnership
Contact Person:		Telephone Number:	Federal Tax ID:

C. Facility Operator (The agency or business, not the person):

Name:		Operator Type (Check One)	
Address:		1. <input type="checkbox"/> Individual 2. <input type="checkbox"/> Corporation	
City:	State:	Zip Code:	3. <input type="checkbox"/> Governmental Agency 4. <input type="checkbox"/> Partnership
Contact Person:		Telephone Number:	5. <input type="checkbox"/> Other: _____

D. Owner of the Land:

Name:		Owner Type (Check One)	
Address:		1. <input type="checkbox"/> Individual 2. <input type="checkbox"/> Corporation	
City:	State:	Zip Code:	3. <input type="checkbox"/> Governmental Agency 4. <input type="checkbox"/> Partnership
Contact Person:		Telephone Number:	5. <input type="checkbox"/> Other: _____

E. Address Where Legal Notice May Be Served:

Address:		
City:	State:	Zip Code:
Contact Person:	Telephone Number:	

F. Billing Address:

Address:		
City:	State:	Zip Code:
Contact Person:	Telephone Number:	



APPLICATION/REPORT OF WASTE DISCHARGE GENERAL INFORMATION FORM FOR WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT



II. TYPE OF DISCHARGE

Check Type of Discharge(s) Described in this Application (A or B):

☐ **A. WASTE DISCHARGE TO LAND**

☐ **B. WASTE DISCHARGE TO SURFACE WATER**

Check all that apply:

☐ Domestic/Municipal Wastewater
Treatment and Disposal

☐ Cooling Water

☐ Mining

☐ Waste Pile

☐ Wastewater Reclamation

☐ Other, please describe: _____

☐ Animal Waste Solids

☐ Land Treatment Unit

☐ Dredge Material Disposal

☐ Surface Impoundment

☐ Industrial Process Wastewater

☐ Animal or Aquacultural Wastewater

☐ Biosolids/Residual

☐ Hazardous Waste (see instructions)

☐ Landfill (see instructions)

☐ Storm Water

III. LOCATION OF THE FACILITY

Describe the physical location of the facility.

1. Assessor's Parcel Number(s)

Facility:

Discharge Point:

2. Latitude

Facility:

Discharge Point:

3. Longitude

Facility:

Discharge Point:

IV. REASON FOR FILING

☐ New Discharge or Facility

☐ Changes in Ownership/Operator (see instructions)

☐ Change in Design or Operation

☐ Waste Discharge Requirements Update or NPDES Permit Reissuance

☐ Change in Quantity/Type of Discharge

☐ Other: _____

V. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Name of Lead Agency: _____

Has a public agency determined that the proposed project is exempt from CEQA?

☐ Yes

☐ No

If Yes, state the basis for the exemption and the name of the agency supplying the exemption on the line below.

Basis for Exemption/Agency: _____

Has a "Notice of Determination" been filed under CEQA?

☐ Yes

☐ No

If Yes, enclose a copy of the CEQA document, Environmental Impact Report, or Negative Declaration. If no, identify the expected type of CEQA document and expected date of completion.

Expected CEQA Documents:

☐ EIR

☐ Negative Declaration

Expected CEQA Completion Date: _____



APPLICATION/REPORT OF WASTE DISCHARGE GENERAL INFORMATION FORM FOR WASTE DISCHARGE REQUIREMENTS OR NPDES PERMIT



VI. OTHER REQUIRED INFORMATION

Please provide a COMPLETE characterization of your discharge. A complete characterization includes, but is not limited to, design and actual flows, a list of constituents and the discharge concentration of each constituent, a list of other appropriate waste discharge characteristics, a description and schematic drawing of all treatment processes, a description of any Best Management Practices (BMPs) used, and a description of disposal methods.

Also include a site map showing the location of the facility and, if you are submitting this application for an NPDES permit, identify the surface water to which you propose to discharge. Please try to limit your maps to a scale of 1:24,000 (7.5' USGS Quadrangle) or a street map, if more appropriate.

VII. OTHER

Attach additional sheets to explain any responses which need clarification. List attachments with titles and dates below:

See attached sheet for 1) the reason this Report of Waste Discharge is being submitted, and 2) a list of attachments.

You will be notified by a representative of the RWQCB within 30 days of receipt of your application. The notice will state if your application is complete or if there is additional information you must submit to complete your Application/Report of Waste Discharge, pursuant to Division 7, Section 13260 of the California Water Code.

VIII. CERTIFICATION

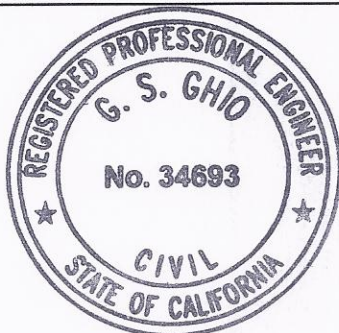
"I certify under penalty of law that this document, including all attachments and supplemental information, were prepared under my direction and supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Print Name: Gary S. Ghio

Title: District Engineer

Signature: 

Date: 10/16/2012



FOR OFFICE USE ONLY

Date Form 200 Received:	Letter to Discharger:	Fee Amount Received:	Check #:
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Murphys Sanitary District
Report of Waste Discharge
September 2012

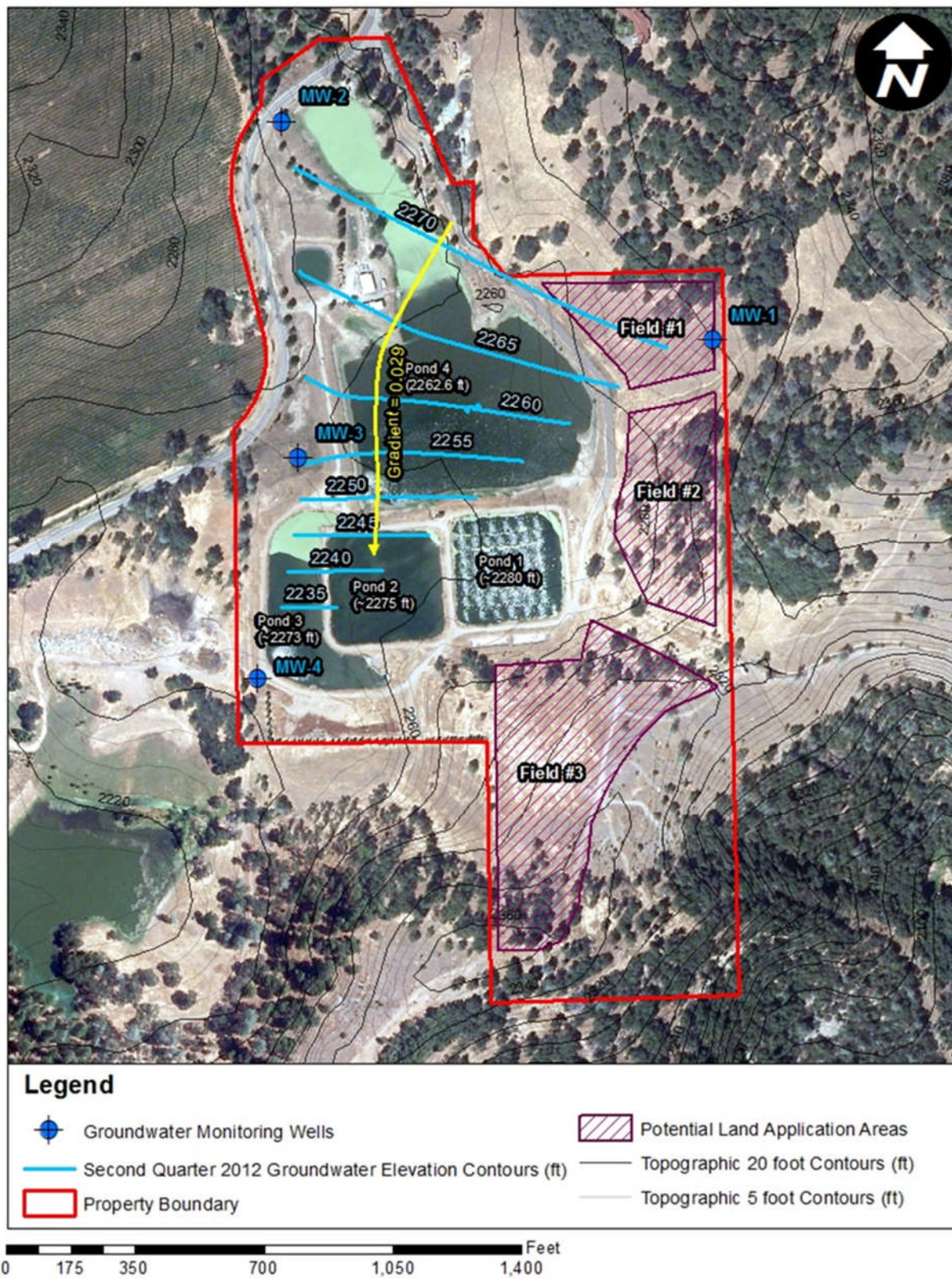
VII. Other

The reason for filing this Report of Waste Discharge is to allow effluent disposal on 20 acres of District owned land that is adjacent to the existing wastewater treatment facility (WWTF, see attached Site Plan). The District is requesting that the District's current Order (Order No. 5-00-264) be reopened and amended to allow effluent disposal on the subject land to serve as a backup effluent disposal method to that provided under Order No. R5-2007-0050 which permits reclamation of District effluent by John Kautz Farms, which will continue to be the District's preferred and primary means of effluent disposal, and the basis of the District's currently permitted capacity of 0.2 Mgal/d. The addition of the subject 20-acre parcel to Order No. 5-00-264 for the purposes of effluent disposal, does not add capacity to the WWTF, but rather is added solely to provide redundant/backup effluent disposal, if/when needed, to that provided by John Kautz Farms. The District is requesting addition of this safety feature to the WWTF, nothing more and nothing less.

List of Attachments:

1. Site Plan, September 2012
2. Murphys Sanitary District, Effluent Disposal Improvement Project, Initial Study/Mitigated Negative Declaration, January 2012.
3. Report of Waste Discharge Technical Support Document, September 17, 2012. (This document includes as Attachment A "Preliminary Hydrogeologic Impact Assessment and Disposal Evaluation Report" August 27, 2012).

Site Map



Murphys WWTF Site Map

CEQA Document

Murphys Sanitary District

Effluent Disposal Improvement Project



Initial Study/Mitigated Negative Declaration

January 2012

Prepared for:
Murphys Sanitary District

Prepared by:
Stantec Consulting Services, Inc.
101 Providence Mine Road, Suite 202
Nevada City, California 95959



Stantec

One Team. Infinite Solutions.



**MURPHYS SANITARY DISTRICT
EFFLUENT DISPOSAL
IMPROVEMENT PROJECT**
Initial Study/Mitigated Negative
Declaration

Prepared for

Murphys Sanitary District
90 Big Trees Road #B
Murphys, CA 95247
Tel: (209) 728-3094

Prepared by

Stantec Consulting Services Inc.
101 Providence Mine Road, Suite 202
Nevada City, CA 95959
Tel: (530) 470-0515
Fax: (530) 470-0518

January 2012

**MURPHYS SANITARY DISTRICT
EFFLUENT DISPOSAL IMPROVEMENT PROJECT**

Project Summary Information

PROJECT TEAM

Murphys Sanitary District Representatives

Gary Ghio, P.E. - District Engineer

Stantec Consulting Services Inc. Representatives

Project Engineers

Eric Zeigler, - Permitting Specialist/Project Manager
Rich Stowell, P.E. - Project Engineer
Tom Butler, P.E. - Hydrogeologist

List of Authors

Bernadette Bezy - CEQA Project Manager/ Biologist
Amy Croft - Assistant PM/Environmental Compliance Specialist/Biologist
Meagan O'Deegan - Environmental/Cultural Resource Specialist
Kimberly Smith - Environmental Planner/ GIS
Ann Tolman - Editor/Formatting

PROJECT TITLE

Murphys Sanitary District Effluent Disposal Improvement Project

Lead Agency Name and Address

Murphys Sanitary District
90 Big Trees Rd #B
Murphys, CA 95247
(209) 728-3094

Contact Person and Phone Number

Bernadette Bezy, CEQA Specialist
Stantec Consulting Services Inc.
Phone: (530) 470-0515
E-mail: bernadette.bezy@stantec.com

PROJECT LOCATION

Spray Field Site
Located at 735 Six Mile Road, 1 mile south of Murphys (APN# 066-201-027)
(See Figure 2.2-1)

**MURPHYS SANITARY DISTRICT
EFFLUENT DISPOSAL IMPROVEMENT PROJECT**

January 2012

General Plan Designation and Zoning District

Public Service (PS), Residential Agriculture (RA-10), and Rural Residential (RR-10)

PURPOSE OF PROJECT

The proposed Project entails the addition of a land disposal effluent spray field for the Murphys Sanitary District. The purpose of the proposed Project is to supplement the Murphys Sanitary District (hereinafter, District) reliable effluent disposal capacity during dry weather to assure complete land containment of all effluent under all foreseeable climatic conditions and Hay Station property effluent irrigation needs.

Surrounding Land Uses and Setting

- General Agriculture (A1-20)
- Rural Residential (RR-10, RR-5, RR-X)
- Residential Agriculture (RA-10, RA-X)

**MURPHYS SANITARY DISTRICT
EFFLUENT DISPOSAL IMPROVEMENT PROJECT**

January 2012

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this Project, involving at least one impact that requires mitigation to reduce the impact from "Potentially Significant" to "Less than Significant" as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture Resources | <input checked="" type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input checked="" type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input checked="" type="checkbox"/> Hazards & Hazardous Materials | <input checked="" type="checkbox"/> Hydrology/Water Quality |
| <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise |
| <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation |
| <input type="checkbox"/> Transportation/Traffic | <input type="checkbox"/> Utilities/Service Systems | <input type="checkbox"/> Mandatory Findings of Significance |

DETERMINATION: (TO BE COMPLETED BY THE LEAD AGENCY)

On the basis of this initial evaluation:

- ☐ I find that the proposed Project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the Project have been made by or agreed to by the Project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.
- ☐ I find that the proposed Project MAY have a significant effect on the environment, and an environmental impact report is required.
- ☐ I find that the proposed Project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed Project, nothing further is required.


Signature

Gary Ghio
Printed Name

1/17/12
Date

Murphys Sanitation District
For

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**MURPHYS SANITARY DISTRICT
EFFLUENT DISPOSAL IMPROVEMENT PROJECT**

January 2012

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**MURPHYS SANITARY DISTRICT
EFFLUENT DISPOSAL IMPROVEMENT PROJECT**January 2012

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1.0 Introduction

1.1 PROJECT BACKGROUND AND OVERVIEW

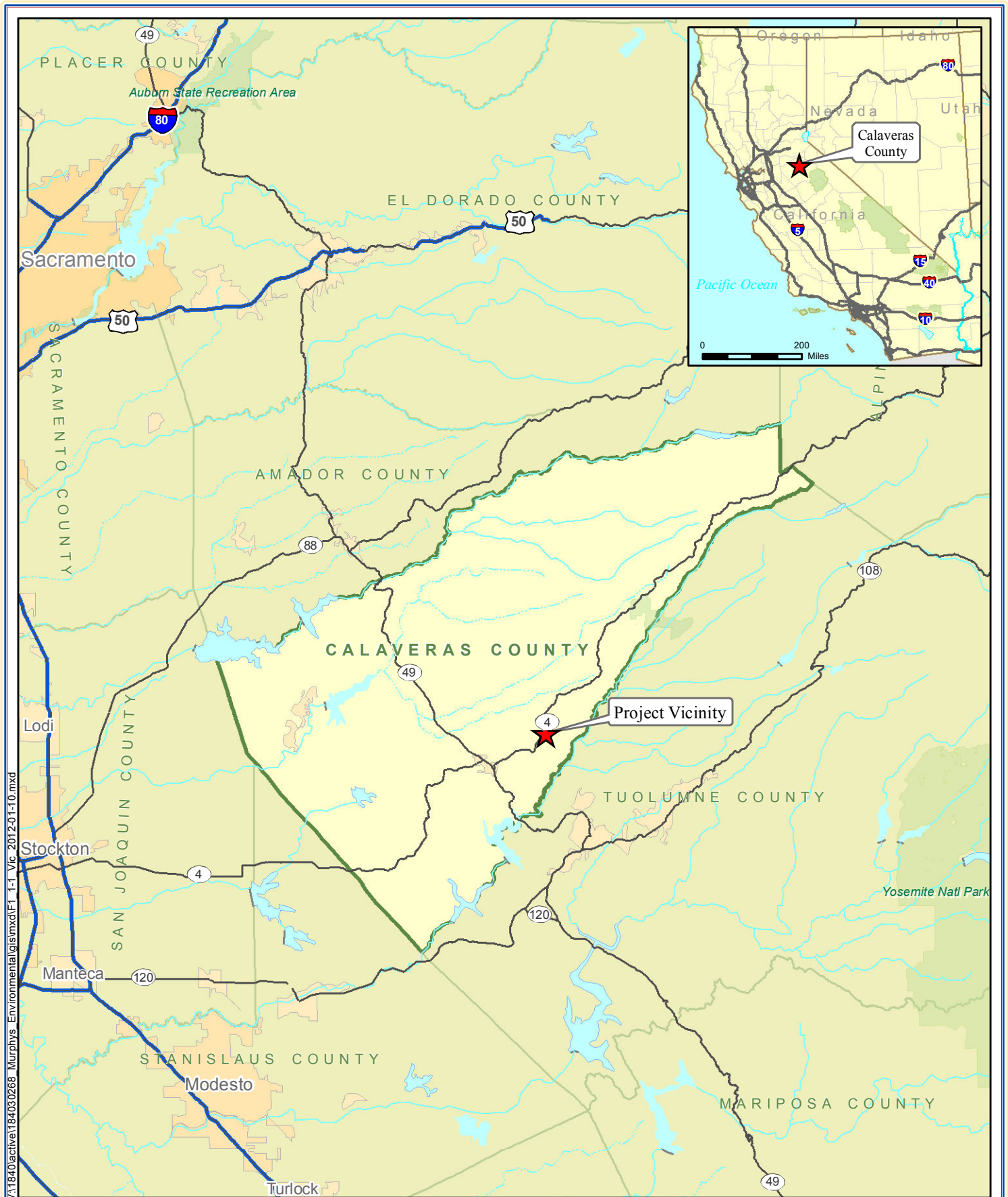
The Murphys Sanitary District (hereinafter, District), located in Calaveras County, California (**Figure 1.1-1 & 2.2-1**), provides wastewater collection, treatment, and disposal services to properties within District boundaries in the communities of Murphys and Douglas Flat. A draft Disposal Phase 1 Report was prepared (April 2011) at the request of the District to provide guidance as to the types of wastewater disposal improvements that the District should study, design, and build on 20 acres of District-owned fallow land to supplement the District's reliable effluent disposal capacity during dry weather.

The State of California requires wastewater facilities to operate reliably to protect public health and the environment through severe climatic conditions, from droughts to 100-year rainfall seasons. The District's wastewater treatment facility (WWTF) and Hay Station property Recycled Water Reuse Areas are regulated by Water Discharge Requirement (WDR) Orders No. 5-00-264 and No. 5-01-063, respectively. With on-going changes in ranching practices (i.e., reduction of water needs), the District may need to supplement its current reclamation operation with additional effluent disposal facilities to assure complete land containment of all effluent under all foreseeable climatic conditions.

The District's proposed Effluent Disposal Improvement Project would change the use of 20 acres of District-owned land from fallow land to being spray irrigated with effluent. The Effluent Disposal Improvement Project is the subject of this Initial Study/Mitigated Negative Declaration environmental analysis. The proposed Project is to supplement the District's reliable effluent disposal capacity during dry weather to assure complete land containment of all effluent under all foreseeable climatic conditions and Hay Station property effluent irrigation needs.



Photo 1: Proposed Effluent Disposal Site



**FIGURE 1.1-1
PROJECT VICINITY**

MURPHYS SANITATION DISTRICT EFFLUENT DISPOSAL PROJECT
Murphys, Calaveras County, California

1.2 CEQA PROCESS

The California Environmental Quality Act (CEQA) was established to ensure state, local, and other agencies evaluate and disclose the environmental implications of their actions. Furthermore, its purpose is to prevent or minimize the environmental effects of agency actions by requiring agencies to avoid or reduce, when feasible, the significant environmental impacts of their actions.

This Initial Study/Mitigated Negative Declaration will be distributed to the Governor's Office of Planning and Research (OPR) State Clearinghouse (SCH) for distribution to state agencies and to applicable county, federal, and other participating agencies to review and comment on this proposed Project.

The Governor's Office of Planning and Research (OPR) State Clearinghouse (SCH) receives and distributes Initial Study/Mitigated Negative Declarations and other types of environmental documents and coordinates the environmental review process for state agencies under CEQA. The SCH circulates CEQA documents for review among state agencies likely to have expertise or regulatory authority over the Projects, and receives and transmits comments from those state agencies to the agencies responsible for preparing the CEQA documents. SCH maintains a database of all Projects it receives for state agency review. Notice of the Public review period and Notice of Intent to adopt the document at a specified public meeting/hearing is concurrently provided to the general public (published in the local newspaper and typically mailed to those property owners within 500 feet of the Project site) and to applicable local and federal agencies, districts, utilities, and others.

When a Project is subject to the requirements of CEQA, an Initial Study (IS) is prepared to identify the potential environmental effects of a Project. (If any Project activities are determined to have potentially significant environmental effects, the Lead Agency will generally either revise the Project to incorporate features that would lessen the environmental effects below a level of significance or develop mitigation measures to avoid or reduce these effects to less-than-significant levels and prepare a Draft IS/Mitigated Negative Declaration (IS/MND) for public review.) The public review period is 30 days when a state agency review is required and for this Project a state agency review is required (see Section 2.6 for "Agency Approvals").

For this proposed Effluent Disposal Improvement Project, Murphys Sanitary District is the Lead Agency under CEQA for the preparation of this IS/MND. Comments received during the 30-day public review period will be considered by the District at a public meeting which is advertised in the notice of public review and intent to adopt. Prior to approving the Project, the District must consider the Draft IS/MND together with any comments received during the public review process. The District Board of Directors must then find that 1) there is no substantial evidence that the Project will have a significant effect on the environment and 2) the CEQA document reflects the City's independent judgment and analysis.

**MURPHYS SANITARY DISTRICT
EFFLUENT DISPOSAL IMPROVEMENT PROJECT**

Introduction
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1.3 SCOPE OF THIS STUDY

As the lead agency under CEQA, the District is responsible for compliance with the environmental review process prescribed by the CEQA guidelines. This study focuses on the environmental issues identified as possibly significant on the CEQA checklist and by CEQA guidelines. A complete Project Description is included in Section 2 of this document. All subject areas of concern relevant to effluent disposal on the subject 20-acre parcel are analyzed in Section 3.0, and the references cited are included in Section 4.0. The Project is being implemented to comply with state water quality regulations and to ensure public health and the environment are protected from any potential significant adverse impacts resulting from the reuse of reclaimed effluent. Additional areas of concern, such as water quality, sensitive plant and animal species, and cultural resources are examined in greater depth. Field studies concerning water resources (rivers, streams, and wetlands), vegetation, wildlife, and cultural resources were conducted on March 16, October 14, and November 11, 2011.

2.0 Project Description

District effluent is currently reclaimed via irrigation of the Hay Station property Recycled Water Reuse Areas (owned by John and Gail Kautz), which is operated by John Kautz Farms. The District's wastewater treatment facility (WWTF) and Hay Station property Recycled Water Reuse Areas are regulated by Waste Discharge Orders No. 5-00-264 and No. 5-01-063, respectively. With ongoing changes in ranching practices, the District is seeking to supplement its current reclamation operation with some effluent disposal facilities to assure complete land containment of all effluent under all foreseeable climatic and ranch conditions. To meet this objective, the District is proposing to construct approximately three to four effluent disposal fields and ground water monitoring wells as shown in **Figure 2.3-1**. The effluent disposal Project will serve to back up the District's existing effluent reclamation activities at Hay Station property.

2.1 PROJECT LOCATION

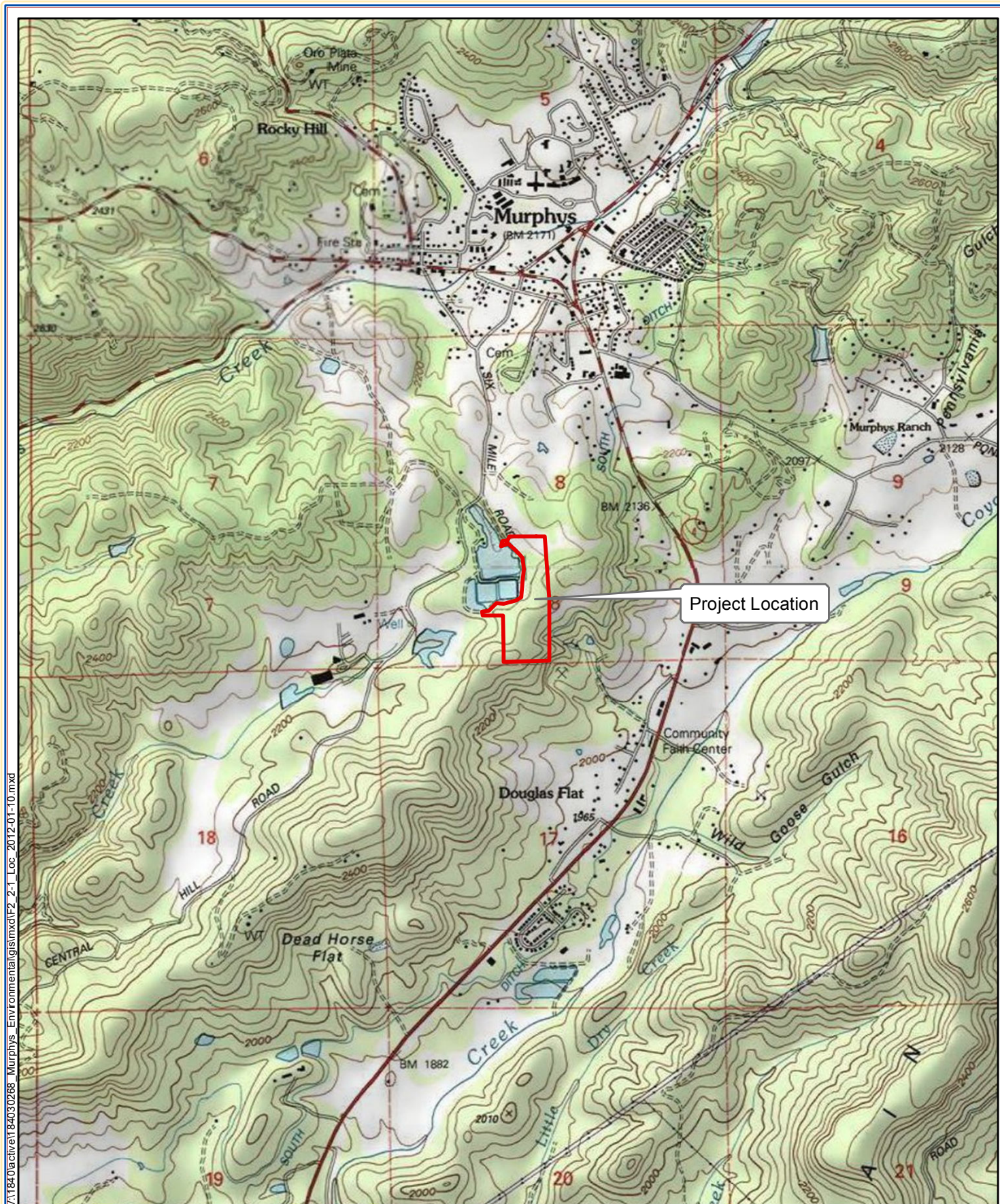
The proposed Project activities will be located on the District-owned 20-acre parcel (APN# 660-10-027) adjacent to the WWTF. A map of the proposed Project location is included in **Figures 2.2-1. Figure 2.3-1** depicts the approximate Project infrastructure locations.

The WWTF property is located approximately one mile south of the town of Murphys, Calaveras County (APN# 066-010-030, 066-010-029, and 066-010-021) (Mt. Diablo Meridian, T3N, R14E, Sec8). The WWTF and 20-acre parcel is located at 735 Six Mile Road. The approximate coordinates of the Project site are Latitude/Longitude 38.1250°N, 120.4585°W.

2.2 EXISTING TREATMENT AND DISPOSAL SYSTEM

The WWTF treats wastewater from the town of Murphys and the surrounding area. The WWTF consists of three treatment ponds (Ponds 1 through 3) and a fourth storage pond (Pond 4). Currently, none of the ponds are lined. District effluent is currently reclaimed via irrigation of the Hay Station property Recycled Water Reuse Areas. The District believes it may need to supplement its current reclamation operation with some effluent disposal facilities to assure complete land containment of all effluent under all foreseeable conditions. This is because Hay Station property may decrease their reclaim water demand as they change over crops to more drought tolerant species.

The WWTF currently has four groundwater monitoring wells located on the WWTF and 20-acre sites.



Project: 184030268; Stantec 2012; Calaveras County 2011; ESRI 2011; Created By: K. Smith

**FIGURE 2.2-1
PROJECT LOCATION**

MURPHYS SANITATION DISTRICT EFFLUENT DISPOSAL PROJECT
Murphys, Calaveras County, California



January, 2012

2.3 PROPOSED PROJECT

The District has purchased land adjacent to the WWTF with the intent of constructing spray fields for additional effluent disposal to meet potential demands of effluent disposal under all foreseeable weather conditions. Three spray fields are proposed as part of the Project. The fields are designed to be graded to ensure no runoff will enter drainage channels or surface waters, and all tail water will be returned to the existing WWTF ponds.

A change in land use from agriculture to public service to effluent spray irrigated land will occur under the proposed Project.

Figure 2.3-1 depicts the spatial limits of the proposed Project effluent disposal areas and the existing WWTF ponds.

The improvements described below and summarized in **Table 2-1** will occur with the implementation of the proposed Project as currently designed:

- **Site Preparation:** The District will utilize and possibly upgrade existing access roads. In addition, laydown sites will be established in open areas on the Hay Station property and fences and warning signs will be installed, if necessary.
- **Irrigation Installation:** Approximately 15 acres of sprinklers on 20 acres of land.
 - Buried and/or above ground piping (TBD during detailed design) from the effluent pump station to the individual sprinklers.
- **Effluent runoff containment facilities:**
 - A ditch berm system will be installed around the toe of the property slopes to channel any effluent runoff to one of two catchment basins for re-circulation and re-application to the land. These runoff containment facilities ensure that effluent will not runoff and enter any nearby waterways. The ditches/berms for these facilities will be small, ranging from 1 to 2 feet high and located strategically in areas to intercept any effluent runoff that may occur from time to time for any reason, and route it to onsite containment facilities. **Figure 2-3.1** shows the general locations of the proposed runoff control facilities on the site.
- **Irrigation Pump Station:**
 - An irrigation pump will be located on the WWTF site adjacent to Pond 4.



**Photo 2: Proposed Effluent Disposal Site
Oak Area**

**MURPHYS SANITARY DISTRICT
EFFLUENT DISPOSAL IMPROVEMENT PROJECT**

Project Description

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- **Monitoring Wells:**
 - Additional monitoring wells will be installed (This number may vary depending on Regional Board requirements.). The wells will consist of a small well pad and a stove-pipe well head for data collection.

- **Operation:**
 - Under the proposed Project it is estimated that the total amount of effluent irrigation per year will depend on Hay Station property effluent needs and climatic factors. Sprinklers spraying this effluent will be operated during dry weather (typically April 15 – October 15) to the extent needed. The irrigation areas will be maintained to prevent the accumulation of debris that may create an atypical fire hazard for the area.

V:\184030268 Murphys Environmental\gis\mxd\F2_3-1 approx footprint 2012-01-10.mxd

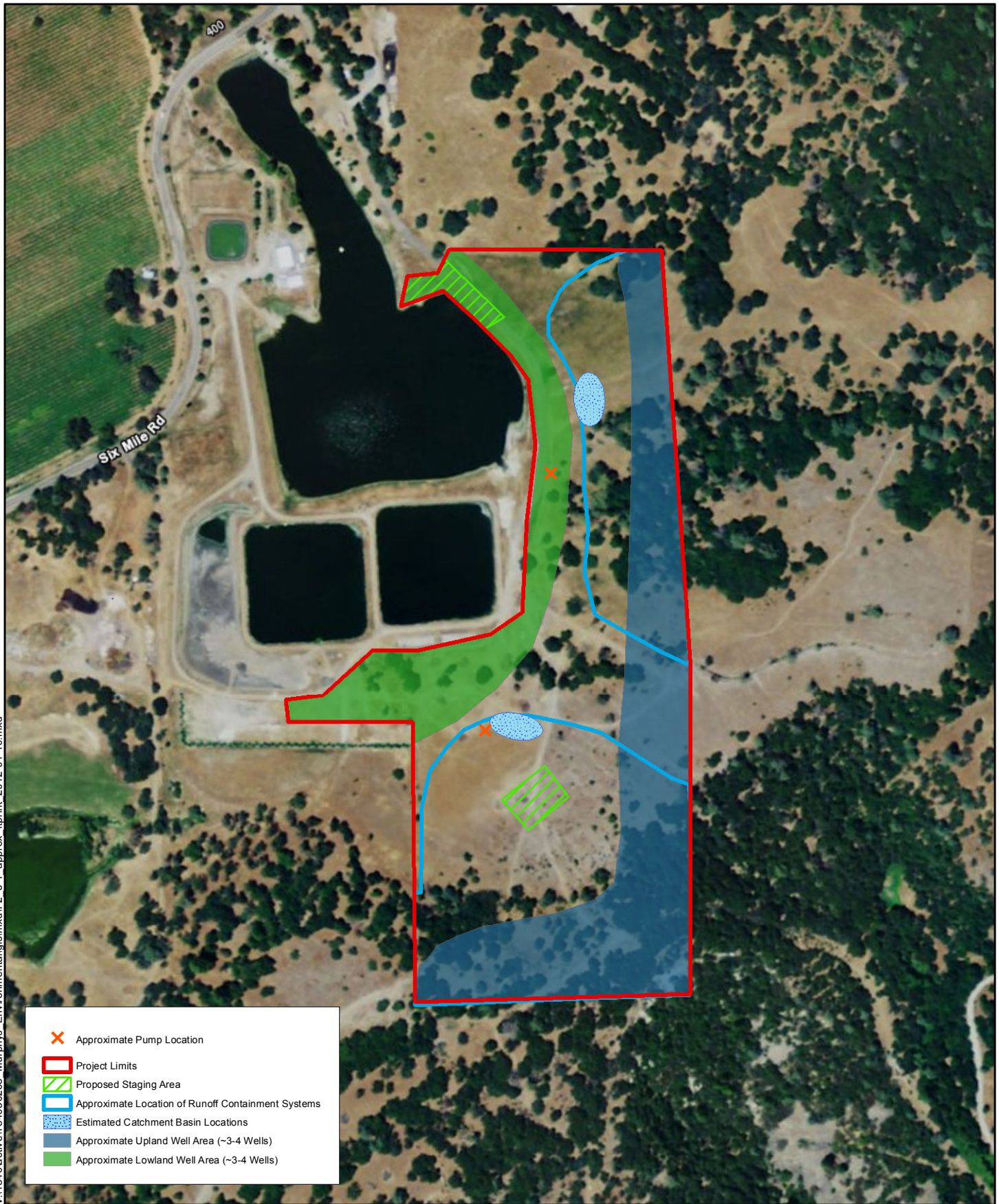


FIGURE 2.2-1
APPROXIMATE PROJECT FOOTPRINT

MURPHYS SANITATION DISTRICT EFFLUENT DISPOSAL PROJECT
Murphys, Calaveras County, California

**MURPHYS SANITARY DISTRICT
EFFLUENT DISPOSAL IMPROVEMENT PROJECT**

Project Description
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Table 2.3-1: Murphys Sanitary District Effluent Disposal Improvement Project Overview and Anticipated Schedule

Improvement	Improvement	Principal Construction Activities	Location	Area of impact	Estimated Date of Construction
Construction					
Site Preparation	<input type="checkbox"/> Open trench site piping installation, to include sprinkler system and conduits for electrical systems	<input type="checkbox"/> Excavation and construction using excavators, backhoes, haulers, and dump trucks. Note: Sprinkler lines may be installed overland without trenching.	<input type="checkbox"/> At the Existing WWTF site and on the adjacent 20 acre parcel	<input type="checkbox"/> Approximately 20 acres (reference site plan).	April 2012 through October 2012
Irrigation Installation	<input type="checkbox"/> New sprinkler system and piping will be installed	<input type="checkbox"/> Excavation and drilling using excavators, backhoes, haulers, cement trucks, and dump trucks.	<input type="checkbox"/> At the existing WWTF site and on the adjacent 20 acre parcel	<input type="checkbox"/> Approximately 20 acres (reference site plan).	April 2012 through October 2012
Effluent runoff containment facilities	<input type="checkbox"/> New ditch berm system at the downslope toe of the spray fields to capture and recirculate any effluent runoff <input type="checkbox"/> Catchment Basins (likely two) to hold any runoff prior to re-application to land	<input type="checkbox"/> Excavation and drilling using excavators, backhoes, haulers, cement trucks, and dump trucks.	<input type="checkbox"/> Along the base of the hill at the Hay Station Parcel (Figure 2.3-1)	<input type="checkbox"/> Ditch/Berm System= 1-2 ft tall and approximately 600-2000 ft long depending on final project design. <input type="checkbox"/> Catchment basin = approximately 100 ft by 40 ft wide by 6 ft deep	April 2012 through October 2012
Irrigation Pump Station	<input type="checkbox"/> New pump station installation	<input type="checkbox"/> Grading, building construction, equipment installation	<input type="checkbox"/> Adjacent to Pond 4 at the existing WWTF site	<input type="checkbox"/> Approximately 5 ft. by 10 ft.	April 2012 through October 2012
Monitoring Wells	<input type="checkbox"/> Potentially new monitoring wells on the upslope and downslope edges of the new spray field	<input type="checkbox"/> Drill Rig	<input type="checkbox"/> Upslope and downslope of the spray fields	<input type="checkbox"/> Well footprints = 4ft by 4ft well pads.	April 2012 through October 2012
Operation					

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EFFLUENT DISPOSAL IMPROVEMENT PROJECT**

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Improvement	Improvement	Principal Construction Activities	Location	Area of impact	Estimated Date of Construction
Spray Irrigation	<input type="checkbox"/> Spray irrigation/land application operation during dry season	<input type="checkbox"/> Running sprinklers to irrigation land	<input type="checkbox"/> District-owned land adjacent to existing WWTF ponds.	<input type="checkbox"/> 15-20 acres	During dry weather (as needed) beginning in 2012

**MURPHYS SANITARY DISTRICT
EFFLUENT DISPOSAL IMPROVEMENT PROJECT**

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2.3.1 Construction Activity Details

The construction activities associated with the sprinkler system piping and ditch berm installation will be typical of any construction site. They include excavation, grading, installation of pipes, valves, and sprinklers. The construction activities associated with each Project action are described in more detail in **Table 2-1** above.

2.3.2 Construction Activities and Estimated Schedule

The target date for the installation of monitoring wells, if needed is spring 2012. Installation of the sprinkler system piping and ditch-berm system is scheduled to take place in 2012 and is estimated to take approximately 6 months.

2.3.3 Construction Activity Locations

The proposed new sprinkler land disposal system will be installed on the District-owned property adjacent to and immediately east of the WWTF.

2.4 OPERATION

The disposal facilities will be expanded to include the District-owned adjacent property; Therefore the focus of this CEQA document is on the addition of spray irrigation activities in the dry season each year on the adjacent property.

2.5 ENVIRONMENTAL COMMITMENTS/BEST STANDARD PRACTICES

The following environmental commitments and Best Management Practices (BMPs) have been incorporated by the District into the Project design and will be executed prior to, and during the proposed Effluent Disposal Improvement Project activities.

Erosion Control and Stormwater Pollution Prevention Plan: The construction contractor will prepare an erosion control plan and a stormwater pollution prevention plan prior to construction for all grading activities that exceed one acre of disturbance (as required by the Regional Board). The plans shall provide, at a minimum, measures to trap sediment, stabilize excavated soil piles, stabilize and revegetate disturbed areas, and any special stabilization measures required by the design engineer. The plan shall be implemented and inspected accordingly in compliance with the permit throughout the construction process.

Noise control: The construction contractor will be responsible for keeping construction noise levels within an acceptable range according to applicable County standards and ordinances.

**MURPHYS SANITARY DISTRICT
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Biological Resource-Related Commitments are as follows:

Trees: Tree removal will be minimized, and, where feasible, avoided.

Location: Construction activities associated with the Effluent Disposal Improvement Project will occur within the limits of the current wastewater treatment facility site and adjacent 20-acre parcel.

Laydown Sites: To the extent feasible, proposed lay down sites will be located in disturbed or graded areas.

Waters of the U.S. and Riparian Habitat: All wetlands, other waters of the U.S., and riparian habitat will be avoided, to the extent feasible. Where avoidance is infeasible the appropriate permits will be obtained.

2.6 AGENCY APPROVALS

The proposed Project will require the following permits:

- SWRCB General Construction Stormwater Permit (SWPPP) for all activities that entail grading an area greater than one acre.
- County zone/land use change to Public Service (or conditional use permit) may be required for the 20 acre parcel which is currently has a zoning designation of Residential Agriculture (RA-10).
- A County Grading Permit will not be necessary for piping work because as a Public Utility, the District is exempt from such a permit (see ordinance paragraph below):
 - Trenching and grading incidental to the siting, construction or installation of County-approved underground pipelines, septic tanks, septic tank disposal fields, conduits, electrical or communication facilities, and drilling or excavation for approved wells or post holes, provided that finished grades following all such trenching and grading activities substantially conform to original contours. (Calaveras County Code, Title 15, Section 15.05.080, December, 2007)

3.0 Environmental Impacts

The following sections summarize (1) the environmental setting, (2) impacts, and (3) proposed mitigation measures associated with the Project. Additional topics such as the methodology and/or regulatory setting were also included where applicable. In all cases the proposed Project activities described in the Project description were analyzed for potential impacts. In each section the improvements are referred to either explicitly by name, or implicitly as “the Project”.

3.1 AESTHETICS

3.1.1 Setting

Located approximately one mile from the town of Murphys at 735 Six Mile Road, the Murphys Sanitary District WWTF is situated on a developed site characterized by gravel access roads, a parking area, treatment and storage ponds, and buildings for operations' staff. The WWTF is in a rural setting surrounded by foothill oak woodland and grasslands. Adjacent land use consists of rural residential land, agricultural land, and vineyards. The ponds and other treatment facilities are generally not visible from public vantage points.

The District-owned parcel where the proposed spray fields would be installed is an open parcel with blue oak grassland habitat on rolling hills. **Photos 3-1** and **3-2** depict the aesthetic and visual setting at the proposed effluent spray irrigation field.



Photo 3-1: View of proposed spray irrigation site facing north.



Photo 3-2: Effluent spray irrigation property (View facing north)

3.1.2 Regulatory Setting

The Calaveras County General Plan Open Space Element (1996) describes the County's goals and policies pertaining to conservation of areas of outstanding Scenic Value. The primary attributes of the County that are considered aesthetically valuable are the reservoirs, rivers and streams, rolling hills with oak habitat, ridgelines, and the forests (Calaveras County General Plan Open Space Element, Section 3.3, 1996).

Calaveras County General Plan

Goal V-6: To preserve and protect the scenic qualities of the County. This goal is promoted by:

- Policy V-6A: Proposed new development shall consider the scenic qualities of the natural resources in the design of the Project.
- Implementation Measure V-6A-1: New development shall be encouraged to avoid extreme topographic modification, and may be required to restore natural contours and vegetation of the land after grading or other land disturbances.
- Implementation Measure V-6A-3: New development shall be encouraged to be designed in a manner that is sensitive to natural resources.

3.1.3 Impact Analysis

Table 3.1-1: CEQA Checklist for Assessing Project-Specific Potential Impacts to Aesthetic Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
I. AESTHETICS: Would the Project:				
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) *Would the Project have a substantial adverse effect on a scenic vista?*

Finding: Less than significant

No scenic vistas have been identified in the Project areas, based on a review of the Calaveras County General Plan (Calaveras County, 1996).

The only road with views of the WWTF is Six Mile Road. However, the aesthetic aspects of any views in the area are not expected to change significantly. The Project proposes to add new sprinklers to the fields surrounding the ponds. The sprinkler system and emergency run-off ditch berm system will be low profile (1-2 ft berms). These ditches will not contrast significantly with the associated background. During operation, the dry season irrigation of the WWTF's property will change the fields from one of dried golden yellow to green grassland during the dry summer months. These fields are visible from Six Mile Road. This change will occur every summer. The total irrigated acreage will be up to approximately 20 acres (depending on soil characteristics). The sight of green fields in the summer is common among many irrigated pastures in the area and it not considered a significant impact to the visual aspect the site.

Therefore, because the Project components are primarily low profile earthen elements, and the summertime greening of fields is typical of irrigated pastureland in the region, the proposed Project has a less than significant impact on the overall aesthetic quality of the WWTF and surrounding area.

- b) Would the Project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings and historic buildings within a state scenic highway?***

Finding: No impact

Based on review of the California Department of Transportation State Scenic Highway list and the existing general plan, there is no state scenic highway adjacent to the Project site. The closest scenic highways are Route 4 and 49. Highway 49 is over 5.5 miles away from the Project site and Highway 4 is over a quarter mile from the Project site. Neither state designated scenic highway is visible from the Project area. Therefore, no impact will occur to scenic highways.

- c) Would the Project substantially degrade the existing visual character or quality of the site and its surroundings?***

Finding: Less than significant

Please refer to the response to item A.

- d) Would the Project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?***

Finding: Less than significant

No significant additional permanent lighting is involved with the WWTF improvements. In general, if new lighting is required for the pump station or any site access, it will be minimal and downward facing and will not add significant additional glare affecting day or nighttime views in the area.

3.2 AGRICULTURAL RESOURCES

3.2.1 Setting

The Hay Station Property where the proposed Project will occur is located on 20 acres of District-owned land. The property is designated Residential Agriculture (RA-10), and Rural Residential (RR-10), both of which allow grazing.

3.2.2 Regulatory Setting

Farmland Protection Policy Act (FPPA)

The Farmland Protection Policy Act (FPPA) of 1981 [Sections 1539-1549 P.L. 97-98, Dec 22, 1981], requires the Secretary of Agriculture to establish and carry out a program to "minimize the extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses, and to the extent practicable, will be compatible with state,

Stantec
MURPHYS SANITARY DISTRICT
EFFLUENT DISPOSAL IMPROVEMENT PROJECT

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unit of local government, and private programs and policies to protect farmland." [7 USC 4201-4209 & 7 USC 658].

Williamson Act

The California Land Conservation Act (Williamson Act) of 1965 is the state's principal policy for the "preservation of a maximum amount of the limited supply of agricultural land in the state" (Cal. Government Code Section 51220(a)). The purpose of the Williamson Act is to preserve agricultural and open space lands by discouraging premature and unnecessary conversion to urban uses. The Williamson Act enables private landowners to contract with counties and cities to voluntarily restrict their land to agricultural and compatible open-space uses. In return for this guarantee by landowners the government jurisdiction assesses taxes based on the agricultural value of the land rather than the market value, which typically results in a substantial reduction in property taxes.

Calaveras County General Plan 1996

The following general plan goals and policies were considered when analyzing potential Project-related impacts to agricultural resources:

Goal IV-1: Preserve and encourage the use of land for agriculture purposes.

Policy IV-1A: Allow resource production lands to remain available for agriculture and rural use.

3.2.3 Impact Analysis

Table 3.2-1: CEQA Checklist for Assessing Project-Specific Potential Impacts to Agricultural Resources

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
II. AGRICULTURE RESOURCES:	Would the Project:				
a)	Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b)	Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

**MURPHYS SANITARY DISTRICT
EFFLUENT DISPOSAL IMPROVEMENT PROJECT**

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		Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
c)	Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d)	Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e)	Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- a) *Would the Project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?***

Finding: Less than significant

According to National Resource Conservation Service (NRCS) Farmland Mapping and Monitoring Program (FMMP) Calaveras County is not mapped for farmland types (NRCS, 2007). Typically, foothill areas contain thin rocky soils and are not considered Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. Calaveras County has designated "High Capability Agriculture Lands" throughout the county; however, the WWTF is not included in this designation. The Project is located in an area zoned rural agricultural. Except for the beneficial impact of summer irrigation, the Project will not significantly affect agricultural resources.

Therefore, because the Project would not result in the conversion of known Prime Farmland, Unique Farmland, Farmland of Statewide, or Local Importance to non-agricultural use, this impact is considered less than significant.

- b) *Would the Project conflict with existing zoning for agricultural use or a Williamson Act contract?***

Finding: Less than significant

**MURPHYS SANITARY DISTRICT
EFFLUENT DISPOSAL IMPROVEMENT PROJECT**

Environmental Impacts

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The proposed Project entails the addition of spray irrigation facilities on the District-owned parcel adjacent to the WWTF. This parcel is not under a Williamson Act Contract (Department of Conservation, 2007). The spray irrigation does not conflict with the existing rural residential and rural agricultural zoning. Rather, the irrigation will allow grazing to occur year round on this land, if desired. Therefore, because the conversion will provide water to improve the grazing capabilities on the land, the Project will have less than a significant (and likely beneficial impact) to agricultural land use in the area.

- c) Would the Project conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?***

Finding: No Impact

The proposed Project area on the District-owned parcel is open fields and grazing land. It is zoned for rural agricultural and is dominated by grassland and oak trees. The proposed Project is not located on forestland and is not used for timber production. Therefore, the Project will have no impact on timber zoning in the area.

- d) Would the Project result in the loss of forest land or conversion of forest land to non-forest use?***

Finding: Less than significant

The Project is located in oak savanna habitat, containing blue and interior live oaks and grassland. It is not designated as forestland and therefore will not result in an overall significant conversion of forestland to non-forestland and uses. Therefore, the potential impacts to forestland are considered less than significant.

- e) Would the Project involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?***

Finding: Less than significant

The proposed spray field area is in an open oak savanna habitat. The proposed Project does not entail a direct or indirect conversion of farm or forestland to a non-agricultural uses. The Project will irrigate grasslands enhancing their ability to support agriculture or grazing. The Project does not entail the irrigation of forestland. Therefore, the proposed Project will not result in the conversion of Farmland to a non-agricultural use or forestland to a non-forest use and this potential impact is considered less than significant.

3.3 AIR QUALITY

3.3.1 Setting

The proposed Project site is located within the Mountain Counties Air Basin. The Mountain Counties Air Basin includes; Plumas, Sierra, Nevada, Placer, El Dorado, Amador, Calaveras, Tuolumne, and Mariposa Counties. The Project is under the jurisdiction of the Calaveras County Air Pollution Control District (CCAPCD), California Air Resources Board (CARB), and Environmental Protection Agency (EPA).

In general, air quality in the Murphys region is considered good when compared to national and state standards. Calaveras County is currently designated non-attainment for the state and national ozone, state particulate matter of approximately 10 micrometers in diameter (PM₁₀) and less than 2.5 microns in diameter (PM_{2.5}) and is in attainment or unclassified for all other the state and national ambient air quality standards (CARB, 2011).

Elevated levels of ozone in the Mountain Counties Air Basin are mainly due to transport from the Sacramento Valley, San Joaquin and San Francisco Bay Area air basins. Eastward flowing surface winds can move air pollution from these adjoining air basins up through the mountain valleys during the daytime and back down at night (CARB, 2007).

3.3.2 Regulatory Setting

Federal Clean Air Act (FCCA)

The FCAA establishes the framework for modern air pollution control. The Act, enacted in 1970 and amended in 1990, directs the EPA to establish ambient air quality standards for six pollutants: Ozone, Carbon Monoxide, Lead, Nitrogen Dioxide, Particulate Matter, and Sulfur Dioxide (O₃, CO, Pb, NO₂, PM₁₀ & PM_{2.5}, and SO₂). These standards are divided into primary and secondary standards, the former are set to protect human health, and the latter are set to protect environmental values, such as plant and animal life.

California Clean Air Act

The California CAA focuses on attainment of the California Ambient Air Quality Standards (CAAQS). These standards are more stringent than federal regulations with respect to certain Criteria Pollutants and averaging periods. Responsibility for monitoring the CAAQS is placed on the Air Resources Board (ARB) and local air pollution control districts.

Table 3.3-1 below describes Calaveras County Area designations for State and National Ambient Air Quality (CARB, 2011).

Table 3.3-1: Calaveras County Area Designations for State and National Ambient Air Quality

Criteria Pollutants	State Designation	National Designation
Ozone	Non-attainment	Non-attainment
PM ₁₀	Non-attainment	Unclassified
PM _{2.5}	Unclassified	Unclassifiable / Attainment
Carbon Monoxide	Unclassified	Unclassifiable / Attainment
Nitrogen Dioxide	Attainment	Unclassifiable / Attainment
Sulfur Dioxide	Attainment	Unclassified
Sulfates	Attainment	-
Lead	Attainment	-
Hydrogen Sulfide	Unclassified	-
Visibility Reducing Particles	Unclassified	-

(Source: CARB, 2011)

Calaveras County Air Pollution Control District (CCAPCD)

The CCAPCD, under the authority of the EPA and CARB regulates air quality and emissions in the County. The CCAPCD implements an Air Quality Management Plan throughout the county. Under the provisions of this Plan, Rule 419 states that emissions of non-attainment pollutants from phased Projects are limited to a collective 100 tons per year. However, under the provisions of CCAPCD Rule 420, construction activity lasting no more than two continuous years is considered a source of temporary emissions, and is therefore exempt from the limitations on non-attainment pollutants in Rule 419 (CARB, 2009). The CCAPCD requires stationary sources of emissions to obtain a permit to operate under Rule 401 – Permit Required Subject to Title V of the 1990 Federal Clean Air Act Amendments. Title V provides for the establishment of operating permit programs for sources, which emit regulated air pollutants, including attainment and nonattainment pollutants (CARB, 2009).

3.3.3 Impact Analysis

Project specific impacts within the given AQMD were analyzed using URBMIS air quality monitoring software. The results of the air quality analysis can be found in **Table 3.3-2** below.

**Table 3.3-2: Murphys Sanitary District Effluent Disposal Improvement Project
URBEMIS Air Emissions Model**

11/8/2011 3:43:48 PM

Urbemis 2007 Version 9.2.4

Summary Report for Annual Emissions (Tons/Year)

Project Name: Murphys Sanitary District Effluent Disposal Improvement Project

Project Location: Mountain Counties Air Basin

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On-Road Vehicle Emissions Based on: Version: Emfac2007 V2.3 Nov 1 2006
Off-Road Vehicle Emissions Based on: OFFROAD2007

CONSTRUCTION EMISSION ESTIMATES										
	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u> <u>Dust</u>	<u>PM10</u> <u>Exhaust</u>	<u>PM10</u>	<u>PM2.5</u> <u>Dust</u>	<u>PM2.5</u> <u>Exhaust</u>	<u>PM2.5</u>
Year 1 Construction TOTALS (tons/year unmitigated)	0.44	1.52	1.23	0.00	3.25	0.09	3.34	0.68	0.08	0.76
EPA General Conformity “de minimis” Threshold (tons/yr)	10	10	100	100	70	70	70	100	100	100
2010 Calaveras County Emissions (Tons/ Day)	47.6	5.0	63.3	0.2	13.3	13.3	13.3	5.7	5.7	5.7
AREA SOURCE EMISSION ESTIMATES										
	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>		<u>PM2.5</u>			
TOTALS (tons/year, unmitigated)	0.03	0.00	0.14	0.00	0.00		0.00			
OPERATIONAL (VEHICLE) EMISSION ESTIMATES										
	<u>ROG</u>	<u>NOx</u>	<u>CO</u>	<u>SO2</u>	<u>PM10</u>		<u>PM2.5</u>			
TOTALS (tons/year, unmitigated)	0.00	0.00	0.01	0.00	0.00		0.00			
EPA General Conformity “de mimimis” Threshold (tons/yr)	10	10	100	100	70		100			
2010 Calaveras County Emissions (Tons/ Day)	47.6	5.0	63.3	0.2	13.3		5.7			

Potential Project related impacts and the mitigation to reduce such impacts to less than significant levels are discussed below. The air emissions for construction and operations are analyzed.

Table 3.3-3: CEQA Checklist for Assessing Project-Specific Potential Impacts to Air Quality

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
III. AIR QUALITY -- Would the Project:					
a)	Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b)	Violate any air quality standard or contribute to an existing or Projected air quality violation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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		Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
c)	Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d)	Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e)	Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) *Would the Project conflict with or obstruct implementation of the applicable air quality plan?*

Finding: Less than significant with mitigation incorporated

Calaveras County Air Pollution Control District (CCAPCD) has adopted goals and rules intended to improve air quality in Calaveras County and the Mountain Counties air basin. The proposed Project is not in conflict with or obstructing the implementation of these goals and rules because mitigation measures and best management practices (BMPs) will be implemented by District contractors. Project construction entails approximately six months of construction activities at the Project site from April 2012 to September 2012. Operation activities after construction will be similar to existing conditions; therefore, the Project does not represent a significant addition of long term impacts to air quality. The Project will entail the temporary addition of construction vehicles (typically no more than 7 cars, trucks or other vehicular equipment will be associated with the Project on any given day). Therefore, there will not be excessive localized CO concentrations due to motor vehicle emissions, Project traffic, or a Project caused increase in traffic.

The access roads to the Project site are 75% paved and 25% unpaved. These unpaved roads do not generate excessive amounts of dust because the roads are not often traveled and are primarily used for WWTF. Potential impacts will occur within the Project areas during grading, trenching, and building construction activities. Calaveras County is in non-attainment for State and Federal ozone levels and State PM₁₀. As a result, an incremental increase in background ozone or PM₁₀ levels would be considered a significant impact and implementation of mitigation measure AIR-01 will reduce air emissions impacts to less-than-significant levels.

During construction, the District shall require the construction contractor to implement mitigation Measure AIR-01 to maintain potential construction-related air quality impacts at acceptable levels. This Project will be consistent with the goals of the CCAPCD through the

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implementation of Mitigation Measure AIR-01. The facility operational activities will not significantly differ from current operations. Therefore, potential air quality impacts are considered to be less than significant with the following mitigation incorporated.

Mitigation Measure AIR-01: Dust and Emissions Control Measures.

The following will be conducted throughout the construction period to limit and control dust and air emissions:

- Utilize watering trucks for dust control, ensuring that soil moisture is adequate to eliminate or substantially reduce any visible dust emissions.
- Storage piles would be kept wet or covered during construction.
- Cover all trucks hauling soil, sand, and other loose materials or require all trucks to maintain at least 2 feet of freeboard.
- Vehicles and equipment traveling across unpaved areas would be kept to speeds of less than 15 miles per hour (speed limit must be posted).
- All grading and earth moving operations shall be suspended when sustained wind speeds exceed 20 mph.
- The Project contractor shall ensure that all construction equipment is properly maintained.
- If dust or dirt accumulates on the roadways, sweep (with water sweepers) all paved access roads, parking areas, and staging areas at construction sites.
- Employ best management construction practices to avoid unnecessary emissions (e.g., trucks and vehicles in loading and unloading queues would turn their engines off when not in use). Vehicle and equipment idling shall not be allowed to exceed five minutes.
- Encourage construction worker commuters to carpool or employ other means to reduce trip generation.

Mitigation Measure AIR-01 Implementation

- **Responsible Party:** The District would require that the contractor adhere to the above-mentioned measures.
- **Timing:** During Construction
- **Monitoring and Reporting Program:** During construction, regular inspections will be performed by a District representative and reports will be kept on file by District for inspection by the CCAPCD, or other interested parties.
- **Standards for Success:** Visible emissions and dust are kept to the lowest practicable level. The goal is to minimize dust and emissions during construction and to the extent feasible, complaints from the public.

b) Would the Project violate any air quality standard or contribute to an existing or projected air quality violation?

Finding: Less than significant with mitigation incorporated

Calaveras County is currently at a non-attainment status for ozone and PM₁₀, based on a review of California ARB air pollution attainment status for Calaveras County. Potential impacts will occur within the Project areas during grading, trenching, and building construction activities. Because the County is already at a non-attainment status for ozone and PM₁₀, this increase represents a significant impact requiring mitigation. Mitigation Measure AIR-01 above will ensure the implementation of dust and emissions controls to reduce construction-related dust and vehicle emissions to a less than significant level. The facility operational activities will not significantly differ than the current operations. Therefore, this impact is deemed less than significant with mitigation incorporated.

c) Would the Project result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Finding: Less than significant with mitigation incorporated.

Calaveras County is currently at a non-attainment status for ozone and PM₁₀, based on a review of California ARB air pollution attainment status for Calaveras County. Based on the estimated duration of construction described in Question A and in the Project Description, these impacts will occur over a period of approximately six months. Because ozone levels are already at a non-attainment status for the County, any incremental increase represents a significant impact, and requires mitigation. Mitigation Measure AIR-01 (above) will be implemented to reduce construction-related *de minimis* increases to a less than significant level. The facility operational activities will not significantly differ than the current operations. Therefore, impacts are considered less than significant with mitigation incorporated.

d) Would the Project expose sensitive receptors to substantial pollutant concentrations?

Finding: Less than significant with mitigation incorporated

The nearest sensitive receptors to the Project are several single-family residences along Highway 4 and Ironstone Vineyards & Winery on Six Mile Road. These properties are over 500 feet from any construction activities. As mentioned in item (b), the construction equipment traffic, excavation and exposure of soil, and final grading have the ability to generate fugitive dust and add to the level of PM₁₀ in the area, which can decrease air quality and have detrimental effects on human health, particularly for sensitive receptors. Mitigation Measure AIR-01 (above) will be implemented to reduce construction-related impacts to a less than significant level. The facility operational activities will not significantly differ than the current operations. Therefore, the incremental increase of air emissions during operation and its

resultant impacts to sensitive receptors is considered *less than significant with mitigation incorporated*.

e) *Would the Project create objectionable odors affecting a substantial number of people?*

Finding: Less than significant

While offensive odors rarely cause any physical harm, they can still be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the CCAPCD. The occurrence and severity of odor impacts depends on numerous factors, including the nature, frequency, and intensity of the source, the wind speed and direction, and the sensitivity of the receptor.

The existing WWTF has characteristic odors, some of which are due to the current aerated wastewater treatment chambers; however, the District operates the facilities including irrigation practices on the Iron Stone Vineyards & Winery, with little or no odor complaints. The number of persons that could be exposed to the WWTF odors is limited to a few residences and Iron Stone Vineyards & Winery over approximately 500 feet from the facility. The addition of treated effluent spray fields will not significantly add to the WWTF odors. The sprayed effluent is treated and dispersed with large sprinklers that aerate and dissipate significant odors. Therefore, objectionable odors will not likely affect a substantial number of people. The odor related impacts from the proposed Project are considered less than significant.

3.4 BIOLOGICAL RESOURCES

3.4.1 Setting

The Project site is located in the Sierra Nevada foothills in the transitional zone between the San Joaquin Valley and the Sierra Nevada Range. The Project is located at 2300 feet above sea level. Temperatures range from the low 30's to the high 90's, exceeding 100 degrees during the summer months (Calaveras County, 1996). The region includes mixed oak woodland, interior live oak woodland, mixed chaparral, and annual grassland communities. The biological communities in the vicinity of the Project components are described below.

Biological Communities

Mixed Oak and Blue Oak/Pine Woodland (Foothill Woodland)

This habitat series usually occurs with a hardpan or rocky soil down between 4 and 20 feet. Some of the dominant plants include blue oak (*Quercus douglasii*), interior live oak (*Quercus wislizenii*), valley oak (*Quercus lobata*), and grey pine (*Pinus sabiniana*), with companions of manzanita (*Arctostaphylos spp.*), coffeeberry and redberry (*Rhamnus spp.*), currant and gooseberry (*Ribes spp.*), and toyon (*Heteromeles arbutifolia*). Annual goldfields (*Lasthenia*

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spp.), poppies (*Eschscholzia spp.*), lupines (*Lupinus spp.*) and other forbs bloom in the open areas in spring. Tree species in foothill woodlands range from a height of 15 to 70 feet.

The foothill woodland at the Project site is principally an open canopy habitat with a herbaceous understory. The plant community has most likely been subject to past grazing at the proposed effluent disposal spray field sites.

Annual Grassland/Pastureland

Annual grassland and pasturelands in the Project area includes areas dominated mostly by nonnative Mediterranean annual grasses. This extensive vegetative series is composed of many alien and native annual species. Composition varies among stands (CNPS, 1995). The most common foothill grasses are now annuals, whereas their native counter-parts were often perennial grasses. In annual grasslands *Avena barbata* and *A. fatua* are common oats. Bromes include ripgut brome and red brome (*Bromus rubens*) as well as soft chess, and foxtail chess. Common filarees include *Erodium botrys* and *E. cicutarium*. *Lasthenia californica* is the common goldfield and *Lupinus bicolor* the common lupine. *Lolium multiflorum* is the common Italian ryegrass. Fall temperatures and precipitation are major factors determining grassland composition, along with light intensity affected by shading from plants and litter and differences in micro-topography (CNPS, 1995). Bur clover, star thistle, annual clovers (*Trifolium* species) and tarweeds (*Holocarpha spp.*) also dominate annual grasslands (Johnston, 1998). Native herbs and perennial native grasses as well as native and non-native forbs were noted in the study area, including yellow star thistle (*Centaurea solstitialis*), vetch (*Vicia sativa*), curly doc (*Rumex crispus*), and wild oats (*Avena barbata*).

Many wildlife species forage and hunt in annual grassland; however, grasslands are most productive when they are associated with woodlands, wetlands or riparian habitat, which tend to provide better cover and nesting habitat than exposed grassland. Reptiles that breed in annual grassland include the western fence lizard, common garter snake, and western rattlesnake. Mammals include the black tailed hare, California ground squirrel, Botta's pocket gopher, western harvest mouse, California vole, badger, mule deer and coyote. Common birds that breed in grasslands include the short-eared owl, horned lark, and western meadowlark. This habitat also provides foraging habitat for several birds of prey.

Portions of the proposed spray fields traverse annual grass/pastureland.

Wastewater Pond Wetlands

The only potential wetlands observed during reconnaissance level surveys of the Project footprint are associated with wastewater treatment pond edges. However, such areas are exempt from the Clean Water Act Section 404 regulations because their source water can be "turned off" (40 CFR Part 230.3 Subpart A (t)). These artificial wetlands are dominated by

cattails, curly dock, Baltic rush, cocklebur, and other annual species that were not identifiable during the winter survey.

Special-Status Species

For the purpose of this IS/MND, special-status species are defined as:

- Species listed or proposed for listing as threatened or endangered under the federal Endangered Species Act (ESA) (50 Code of Federal Regulations [CFR] 17.12 for listed plants, 50 CFR 17.11 for listed animals, and various notices in the Federal Register [FR] for proposed species);
- Species that are candidates for possible future listing as threatened or endangered under ESA (67 FR 40657, June 13, 2002);
- Species that are federal species of concern;
- Species that are listed or proposed for listing by California as threatened or endangered under the California Endangered Species Act (CESA) (14 CCR 670.5);
- Plants listed as rare under the California Native Plant Protection Act of 1977 (California Fish and Game Code 1900 et seq.);
- Plants considered by CNPS to be “rare, threatened, or endangered in California and elsewhere” (CNPS List 1B species);
- Species that meet the definitions of “rare” or “endangered” under State CEQA Guidelines Section 15380;
- Animal species of special concern to DFG; and
- Animals fully protected in California (California Fish and Game Code Sections 3511 [birds], 4700 [mammals], and 5050 [reptiles and amphibians]).

3.4.2 Regulatory Setting

Federal Regulations

Section 404 of the Clean Water Act (CWA)

The United States Army Corps of Engineers (Corps) and the Environmental Protection Agency (EPA) regulate the discharge of dredge or fill material into waters of the United States under Section 404 of the CWA (“waters of the United States” include wetlands and lakes, rivers, streams, and their tributaries). Wetlands are defined for regulatory purposes as areas “...inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated solid conditions” (333 CFR 328.3, 40 CFR 230.3). Project proponents must obtain a permit from the Corps for all discharges of fill material into waters of the United States, including wetlands, before proceeding with a proposed action. The proposed

Project as currently designed will avoid the placement of dredge or fill material into drainages and waterways.

Clean Water Act, Section 401 (Central Valley Regional Water Quality Control Board):

CWA Section 401 compliance is required for any Project requiring a federal action (i.e. Corps permit or federal funding) with construction that could have an impact to surface water quality. The proposed Project as currently planned will not be federally funded and will be designed to avoid impacts to Waters of the US, therefore a CWA 401 Water Quality Certification will not be required. However, if the Project entails winter construction or work that could lead to potential sediment impacts to surface waters, the District will seek a Water Quality Certification under Section 401 of the CWA. In addition, regardless of the potential for federal funding or impacts to waters of the US, the RWQCB is a responsible agency under CEQA and will review the CEQA document.

Migratory Bird Treaty Act and Bald and Gold Eagle Protection Act

The Migratory Bird Treaty Act (MBTA, 16 United States Code Section 703-711) and the Bald and Golden Eagle Protection Act (16 USC Section 668) protect certain species of birds from direct take. The MBTA protects migrant bird species from take through setting hunting limits and seasons and protecting occupied nests and eggs. Additionally, there are California Department of Fish and Game Codes (3503, 3503.5 and 3800), which further protect nesting birds and their parts (See State Regulations Sections below). The Bald and Gold Eagle Protection act prohibits the take or commerce of any part of these species. The USFWS administers both Acts and reviews federal agency actions that may affect species protected by the Acts.

Typically, it is recommended that all vegetation removal be conducted outside of the nesting season, which generally falls between March 1 and September 30, however this may vary from year to year depending on various environmental conditions. If vegetation must be removed during the breeding season, a qualified biologist should conduct a nest survey of the entire Project site immediately prior to the removal of vegetation.

State Regulations**California Endangered Species Act**

The California Department of Fish and Game (CDFG) has jurisdiction over species listed as threatened or endangered under section 2080 of the California Fish and Game Code. The California Endangered Species Act (CESA) prohibits take of state-listed threatened and endangered species. The state Act differs from the federal Act in that it does not include habitat destruction in its definition of take. The California Fish and Game Code defines take as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The CDFG may authorize take under the CESA through Sections 2081 agreements. If the results of a biological survey indicate that a state-listed species would be affected by the Project, the CDFG would

issue an Agreement under Section 2081 of the CDFG Code and would establish a Memorandum of Understanding for the protection of state-listed species.

CDFG maintains lists for Candidate-Endangered Species and Candidate-Threatened Species/ California candidate species are afforded the same level of protection as listed species. California also designates Species of Special Concern, which are species of limited distribution, declining populations, diminishing habitat, or unusual scientific, recreational or educational values. These species do not have the same legal protection as listed species, but may be added to official lists in the future.

California listed and candidate species such as the foothill yellow-legged frog and northwestern pond turtle, are either known to occur within five miles of the Project yet have a low potential to occur in the Project vicinity due to lack of habitat (See analysis below for details).

Streambed Alteration Agreements: CDFG Code Section 1600 et. seq.

CDFG has jurisdictional authority over wetland resources associated with rivers, streams, and lakes under Sections 1600–1616. CDFG has the authority to regulate all work under the jurisdiction of the State of California that would substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake; or use material from a streambed.

In practice, CDFG marks its jurisdictional limit at the top of the stream or lake bank or the outer edge of the riparian vegetation, where present, and sometimes extends its jurisdiction to the edge of the 100-year floodplain. Because riparian habitats do not always support wetland hydrology or hydric soils, wetland boundaries, as defined by CWA Section 404, sometimes include only portions of the riparian habitat adjacent to a river, stream, or lake. Therefore, jurisdictional boundaries under Section 1600 may encompass a greater area than those regulated under CWA Section 404.

CDFG enters into a streambed alteration agreement with an applicant and can impose conditions on the agreement to ensure that no net loss of wetland values or acreage will be incurred. The streambed or lakebed alteration agreement is not a permit, but a mutual agreement between CDFG and the applicant. The proposed Project as currently designed does not entail any work in riparian or stream zones and therefore would not trigger a SAA.

Nesting Migratory Bird and Raptors: CDFG Code Sections 3503, 3503.5, and 3800

Sections 3503, 3503.5, and 3800 of the California Department of Fish and Game Code prohibit the take, possession, or destruction of birds, their nests or eggs. Implementation of the take provisions requires that Project-related disturbance at active nesting territories be reduced or eliminated during critical phases of the nesting cycle (March 1 – September 30, annually). Disturbance includes nest abandonment and/or loss of reproductive effort (e.g., killing or abandonment of eggs or young). The loss of nesting habitat is also considered “take,” and is

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potentially punishable by fines and/or imprisonment. Such taking would also violate federal law protecting migratory birds (e.g., MBTA above).

The potential effluent spray fields occur in the vicinity of oak woodlands, which could contain migratory bird or raptor nest sites. Birds that could nest in these areas include white tailed kite, red-shouldered hawks and red-tailed hawks.

CEQA Guidelines Section 15380

CEQA Guidelines section 15380(b) provides that a species not listed on the federal or state list of protected species may be considered rare or endangered if the species can be shown to meet certain specific criteria. This section was included in the guidelines primarily to deal with situations in which a public agency is reviewing a Project that may have a significant effect on, for example “candidate species” that has not yet been listed by the USFWS or CDFG. CEQA, therefore, enables an agency to protect a species from significant Project impacts until the respective government agencies have an opportunity to list the species as protected, if warranted.

In general, plants appearing on the California Native Plant Society List 1 (Plants believed to be extant and rare threatened or endangered plants in California) and List 2 (Rare, threatened, or endangered plants in California but more numerous elsewhere) are considered to meet CEQA’s Section 15380 criteria. Impacts to these species would therefore be considered “significant” requiring mitigation.

CEQA Oak Woodlands Conservation Law

Effective January 1, 2005, Senate Bill 1334 (Kuehl) established Public Resources Code (PRC) Section 21083.4, the state's first oak woodlands conservation standards for California Environmental Quality Act (CEQA) processes. This new code requires counties (it does not apply to other public agencies) to determine whether or not a Project may cause a significant effect or conversion of oak woodlands. In addition, if the counties determine a Project will significantly affect oak woodlands, the Project proponent must employ one or more of the following CEQA Oak Woodlands Mitigation Alternatives:

- Conserve oak woodlands through the use of conservation easements.
- Plant an appropriate number of trees, including maintaining plantings and replacing dead or diseased trees.
- Contribute funds to the Oak Woodlands Conservation Fund, as established under subdivision (a) of Section 1363 of the Fish and Game Code, for the purpose of purchasing oak woodlands conservation easements.
- Other mitigation measures developed by the county.

This law states that County actions resulting in the loss of oak trees five inches or more in diameter at breast height (dbh or 4.5 ft.) will be subject to compensatory mitigation measures.

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Oaks less than 5 inches dbh will still be subject to conservation measures contained in county ordinances or general plans. Calaveras County does not have a specific tree ordinance yet. Calaveras County does not yet have an Oak Tree Ordinance and the General Plan Land Use and Conservation Elements do not contain specific language for protecting oak trees. A Voluntary Oak Woodland Management Plan exists to encourage voluntary, long-term private stewardship and conservation of Calaveras' oak woodlands.

Local Regulations and Programs

Calaveras County General Plan Goals, Policies, and Implementation Programs in Conservation and Open Space Elements that might pertain to the proposed WWTF Effluent Disposal Improvement Project include:

Open Space Element & Conservation Element (Calaveras County, 1996)

Goal V-1: Preserve and enhance the County's significant wildlife and botanical habitats

Policy V-1A: Review proposed development for potential impacts to significant wildlife and botanical habitats per

Implementation Measure V-1A-2: When reviewing discretionary permits, require a vegetative and/or wildlife assessment and appropriate mitigation measures for those areas identified as potentially containing sensitive species.

Goal V-2: Protect Rivers and streams from excessive sedimentation due to development and grading.

Policy V-2A: Review proposed development Project for potential effects on nearby and adjacent streams, rivers, and lakes.

Implementation Measure V-2A-1: Require appropriate grading and draining plans for proposed development Projects.

Implementation Measure V-2A-2: Require erosion control measures for all grading and earthmoving activities, which may contribute significant sedimentation.

3.4.3 Impact Analysis

A Stantec biologist reviewed existing information and conducted a reconnaissance-level field survey/habitat assessment at the Project site on March 16, 2011 to gather information to support this biological resources analysis. During the field surveys, the areas in and around the Project site were surveyed by the biologist.

The following information was used to identify potential sensitive biological resources in the Project region:

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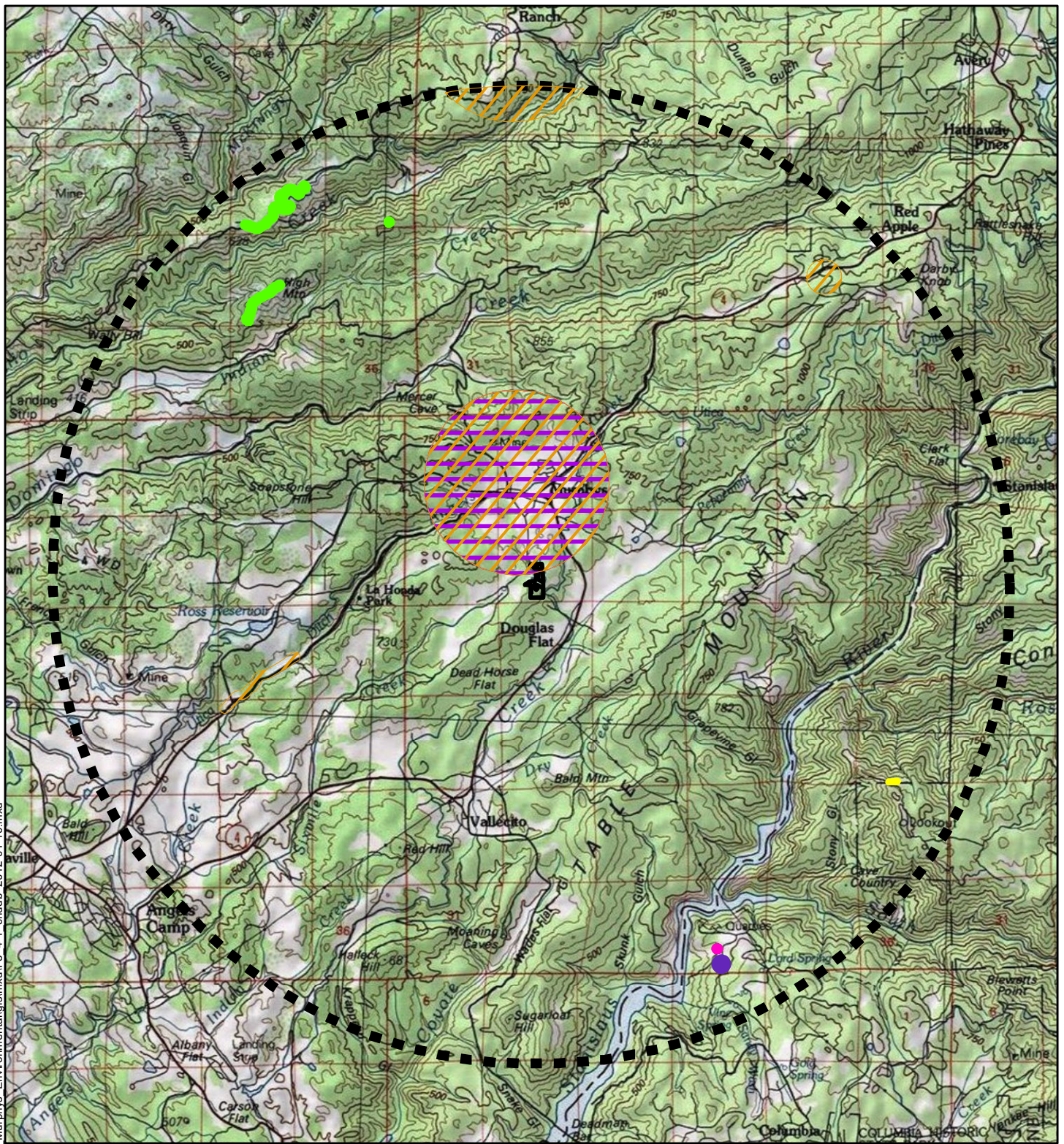
- California Department of Fish and Game's (DFG) California Natural Diversity Database (CNDDDB) (2011) records search of the Murphys 7.5-minute U.S. Geological Survey (USGS) quadrangle and surrounding areas;
- The California Native Plant Society's (CNPS) 2011 online *Inventory of Rare and Endangered Plants of California* for the Standard and Murphys 7.5 minute quad and surrounding areas;
- The U.S. Fish and Wildlife Service (USFWS) list of endangered, threatened, and proposed species for Calaveras County;
- The Calaveras County General Plan Conservation and Open Space Elements (1996);
- U.S. Fish and Wildlife Service National Wetlands Inventory data for Murphys and the surrounding area (See Figure 3.4-2 below);
- Unpublished and published literature;
- Black and white aerial photograph for the area (scale of 1'=120'); and
- The California Cooperative Soil Vegetation Survey Staff between 1965 through 1972. Calaveras County Farm Advisors Office (Calaveras Co.) 1982.
- Stantec file information.

Figure 3.4-1 depicts the special-status species known to occur within five miles of the Murphys Sanitary District WWTF. Two special-status plants (yellow-lip pansy monkey flower and Whipple's monkey flower) are known to occur within the Project site. Thirteen special status wildlife species are known to occur within the Project 5-mile buffer. **Tables 3.4-1 and 3.4-2** describe the species that were screened in this analysis as having a potential to occur in the Project region (CDFG-CNDDDB, 2011; CNPS 2011, USFWS 2011). The list (**Tables 3.4-1 and 3.4-2**) served as a starting point in determining if there were known locations of special-status species or whether suitable habitat might actually be found in the Project area.

For each of these species the "potential for occurrence" at the Project site was evaluated as follows:

- **Unlikely:** The Project site and/or immediate area do not support suitable habitat for a particular species. Project is outside the species known range.
- **Low Potential:** Project site and/or immediate area only provide limited habitat for a particular species. In addition, the known range for a particular species may be outside the immediate Project area.
- **Medium Potential:** The Project site and/or immediate area provide suitable habitat for a particular species, and habitat for the species may be impacted.
- **High Potential:** The Project site and/or immediate area provide ideal habitat conditions for a particular species and/or known populations occur in the immediate area and within the potential area of impact.

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Project Limits


5 Mile Project Buffer


CNDDB Special Status Animal Species


 *Desmocerus californicus dimorphus*; valley elderberry longhorn beetle; Fed: Threatened, Cal: None, CNPS:

 *Rana draytonii*; California red-legged frog; Fed: Threatened, Cal: None, CNPS:

CNDDB Special Status Plant Species

 *Erythronium tuolumnense*; Tuolumne fawn lily; Fed: None, Cal: None, CNPS: 1B.2

 *Horkelia parryi*; Parry's horkelia; Fed: None, Cal: None, CNPS: 1B.2

 *Mimulus pulchellus*; yellow-lip pansy monkeyflower; Fed: None, Cal: None, CNPS: 1B.2

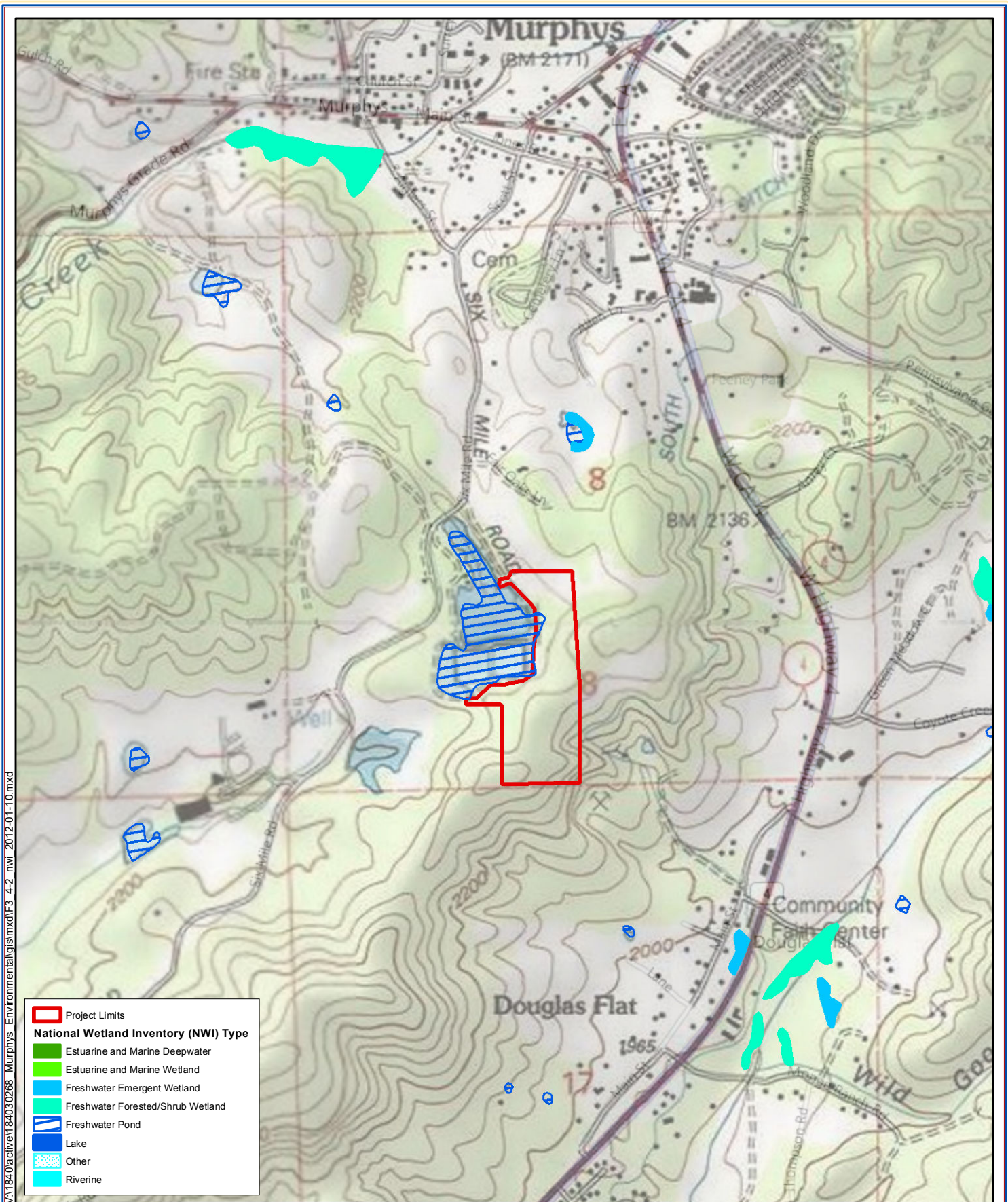
 *Mimulus whipplei*; Whipple's monkeyflower; Fed: None, Cal: None, CNPS: 1A

Project: 184030268; CNDDB 2011; Stantec 2012; Calaveras County 2011; ESRI 2009; Created By: K. Smith



FIGURE 3.4-1

**SPECIAL STATUS SPECIES KNOWN TO OCCUR
WITHIN 5 MILES OF THE PROPOSED PROJECT**
MURPHYS SANITATION DISTRICT EFFLUENT DISPOSAL PROJECT
Murphys, Calaveras County, California



Project: 184030268; USFWS 2011; Stantec 2012; Calaveras County 2011; ESRI 2009; NWI 2011; Created By: K. Smith

FIGURE 3.4-2

NATIONAL WETLAND INVENTORY

MURPHYS SANITATION DISTRICT EFFLUENT DISPOSAL PROJECT
Murphys, Calaveras County, California



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Table 3.4-1: Special-Status Plant Species That Are Known to Occur or Have Potential in the Region around the Project Site

Common Name <i>Scientific Name</i>	Legal Status ^a			Geographic Distribution/Floristic Province	Preferred Habitat	Identification Period	Level of Potential for Occurrence
	Federal	State	CNPS				
Plants							
Yellow-lip Pansy Monkey Flower <i>Mimulus pulchellus</i>	--	--	1B	600 - 2000 meters	Lower montane coniferous forest, meadows and seeps, vernally mesic areas, often disturbed areas with clay soils	April-July	Low: This flower was known to occur in the Project area however, spray field parcel where irrigation fields would be installed does not include suitable wetland areas
Wipple's monkey flower <i>Mimiulus whipplei</i>	--	--	1A	670 - 670 meters	Cismontaine woodland	May	Low: This flower was known to occur in the Project area however, it was last sighted in 1854. It is presumed extant.
Tuolumne fawn lily <i>Erythronium tuolumense</i>	--	--	1B	Tuolumne County – Elevations of 300 to 700 m	Broadleaved upland forest, chaparral, lower montane coniferous forest	April-June	Unlikely: Only known to occur in Tuolumne. And the Project site lacks suitable habitat.
Parry's Horkelia <i>Horkelia parryi</i>	--	--	1B	80 – 1,035 m	Openings in chaparral or woodland, especially known from the lone Formation.	April-June	Unlikely: No chaparral on site. No lone clays mapped on site.

Status explanations:

Federal

E = Listed as endangered under the federal Endangered Species Act.

T = Listed as threatened under the federal Endangered Species Act.

-- = No listing status.

State

E = Listed as endangered under the California Endangered Species Act.

R = Listed as rare under the California Endangered Species Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.

-- = No listing status.

California Native Plant Society

1A= List 1A species: presumed extinct in California.

1B= List 1B species: rare, threatened, or endangered in California and elsewhere.

2 = List 2 species: rare, threatened, or endangered in California but more common elsewhere.

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Table 3.4-2: Special-Status Wildlife Species Identified During the Pre-Survey Screening That Are Known or Have Potential to Occur in the Region around the Project Site

Common Name <i>Scientific Name</i>	Legal Status ^a			Geographic Distribution/Floristic Province	Preferred Habitat	Identification Period	Level of Potential for Occurrence
	Federal	State	CNPS				
Invertebrates							
Valley elderberry longhorn beetle <i>Desmocerus californicus dimorphus</i>	T	--	--	The beetle's current distribution is patchy throughout the remaining riparian forests of the Central Valley from Redding to Bakersfield.	Breeds and forages exclusively on blue elderberry shrubs (<i>Sambucus mexicana</i>) below 3000. Some preference is shown for “stressed” elderberries. The shrubs must have stems that are 1.0 inch or greater in diameter at ground level.	Year –round. Identified by presence or absence survey of exit holes on elderberry bushes.	Low: No elderberry bushes were observed during reconnaissance level field surveys on the WWTF.
Amphibians							
Foothill yellow-legged frog <i>Rana boylei</i>	SC	SC	N/A	Found from near sea levels to 1940 meters in California, mostly distributed throughout the foothill portions of most drainages from the Oregon border to the San Gabriel River.	Shallow, flowing water and prefers small to moderately sized streams. Requires some cobble-sized substrate for egg laying. Always stay within a few feet of aquatic habitat.	Year-round depending on life stage	Unlikely: There are no creeks or streams nearby or in the vicinity of the Project site. No habitat present.
California red-legged frog <i>Rana aurora draytonii</i>	T	SC	N/A	Isolated populations have been documented in the Sierra Nevada, northern Coast, and northern Transverse ranges. They are still locally abundant within portions of the San Francisco Bay area (including Marin County) and the central coast.	Breeds in slow moving streams and ponds, and marches with emergent vegetation and an absence or low occurrence of predators	Year-round depending on life stage	Unlikely: There are no streams or ponds in the Project vicinity.

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Common Name Scientific Name	Legal Status ^a			Geographic Distribution/Floristic Province	Preferred Habitat	Identification Period	Level of Potential for Occurrence
Reptiles							
Northwestern pond turtle <i>Emys (=chemmys) marmorata marmorata</i>	SC	SC	N/A	Historically ranged from Washington state to Baja California.	Occurs in and adjacent to perennial aquatic habitats, especially streams and ponds below 6,000 feet in elevation. Prefers open, grassy south-facing slopes for nest sites. Require some slack- or slow-water aquatic habitat. Uncommon in high gradient streams	Year-round	Low: No creeks or ponds on or near the Project site; however, pond turtle has been known to occur in wastewater ponds in the foothills.
Birds							
American peregrine falcon <i>Falco peregrinus anatum</i>	D	E, FP	N/A	Permanent resident along the north and south Coast Ranges. May summer in the Cascade and Klamath Ranges and through the Sierra Nevada to Madera County. Winters in the Central Valley south through the Transverse and Peninsular Ranges and the plains east of the Cascade Range.	Nests and roosts on protected ledges of high cliffs, usually adjacent to lakes, rivers, or marshes that support large prey populations.	Summer	Low: Some cliff habitat is present on the northeastern side of the proposed spray fields. However, this cliff area will be avoided by the Project.
Bald eagle <i>Haliaeetus leucocephalus</i>	T, PD	E	N/A	Nests in Siskiyou, Modoc, Trinity, Shasta, Lassen, Plumas, Butte, Tehama, Lake, and Mendocino Counties and in the Lake Tahoe Basin. Reintroduced into central coast. Winter range includes the rest of California, except the southeastern deserts, very high altitudes in the Sierra Nevada, and east of the Sierra Nevada south of Mono County.	In western North America, nests and roosts in coniferous forests within 1.5 kilometers of a lake, reservoir, stream, or the ocean.	Year-round	Low: The site may provide marginal wintering habitat; however, it is more likely these species would be found around New Hogan Reservoir.

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Common Name Scientific Name	Legal Status ^a			Geographic Distribution/Floristic Province	Preferred Habitat	Identification Period	Level of Potential for Occurrence
Birds (continued)							
Sharp-shinned hawk	(MBTA)	--	--		Nests in more densely wooded areas than Cooper's Hawk (below).	April - July	Low: Forest canopy is too sparse in the Project area for nesting.
Cooper's hawk (<i>Accipiter cooperi</i>)	(MBTA)-	SSC	N/A		Nests in heavily wooded areas along streams, rivers or in close proximity to seeps and springs.	Year-round (nest April-July)	Low: No streams or rivers on site or in the vicinity.
Red-tail hawk	(MBTA)	--	--		Wide tolerance for habitat variation. Winter preferences tend toward upland pasture areas.	Year round	Moderate: Oak trees and fields provide habitat.
Lawrence's goldfinch <i>Carduelis lawrencei</i>	FSC	--	N/A	Breeds in central and southern California, west of Sierra Nevada and south into Baja California. Spends winters south and east to extreme western Texas.	Nests in foothill oak woodland and chaparral habitats near water.	April-September	Low/Moderate: Mixed oak woodland at the Project site could support nesting Lawrence's goldfinch; however, this species prefers open areas with Chaparral nearby.
Vaux's swift <i>Chaetura vauxi</i>	SC	SC	N/A	Migrant	Nests primarily in coniferous forests	May-September	Unlikely: Project area does not contain suitable habitat.
Black swift <i>Cypseloides niger</i>	SC	SC	N/A	Migrant – breeds locally in Sierra Nevada and Cascade Range and along coastal bluffs.	Nests in moist crevices of caves or cliffs above large canyons with large water features.	Spring/summer	Unlikely: Project area does not provide suitable nesting habitat.
White-tailed kite <i>Elanus leucurus</i>	--	FP	--	Found in lowlands of California west of the Sierra Nevada range, into the foothills and the southeast deserts.	Forages in open plains, grasslands and prairies; typically nests in trees.	Year-round	Low: Site provides moderate foraging habitat in the form of pastureland.
California thrasher <i>Toxostoma redivivum</i>	FSC	--	--	Resident along coastal and inland into the Sierra Nevada range of California southward to northern Baja California.	Nests in dense chaparral habitats.	March-September	Unlikely: No Suitable nesting habitat at the Project site.

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Common Name Scientific Name	Legal Status ^a			Geographic Distribution/Floristic Province	Preferred Habitat	Identification Period	Level of Potential for Occurrence
Mammals							
Pallid bat <i>Antrozous pallidus</i>	--	SC	N/A	Occurs throughout California except the high Sierra from Shasta to Kern County and the northwest coast, primarily at lower and mid elevations.	Occurs in a variety of habitats from desert to coniferous forest. Most closely associated with oak, yellow pine, redwood, and giant sequoia habitats in northern California and oak woodland, grassland, and desert scrub in southern California. Relies heavily on tree cavities for roosts	Year-round	Low: The site lacks substantial roosting habitat.
Townsend's big-eared bat <i>Corynorhinus townsendii</i>	--	SC	--	Occurs throughout the Sierra Nevada Range, central coast, and northern California. Known to roost in Calaveras County.	Desert scrub, chaparral, oak woodland, conifer forest	Year-round	Low: Known roosting site ~ 5 miles from the Project site. However, no suitable roosting site on the Project site.
Greater western mastiff-bat <i>Eumops perotis californicus</i>	SC	SC	N/A	Isolated occurrences in northern California	Roosts primarily in crevices within cliffs and canyons, occasionally in buildings. Primarily feeds on moths. Maternity colonies active May through July.	Year-round	Unlikely: No suitable roost or maternity sites occur in the study areas. Foraging habitat (located along creek corridors) will be avoided by the Project.

* Confirmed siting within five miles of the Project site in the Standard and San Andreas USGS 7.5" quadrangle.

Status explanations:

Federal

E = Listed as endangered under the federal Endangered Species Act.

T = Listed as threatened under the federal Endangered Species Act.

-- = No listing status.

State

E = Listed as endangered under the California Endangered Species Act.

R = Listed as rare under the California Endangered Species Act. This category is no longer used for newly listed plants, but some plants previously listed as rare retain this designation.

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California Native Plant Society

1A= List 1A species: presumed extinct in California.

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The following discussion evaluates the potential impacts to biological resources from the proposed Project.

Table 3.4-3: CEQA Checklist for Assessing Project-Specific Potential Biological Resources Impacts

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
IV. BIOLOGICAL RESOURCES -- Would the Project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- a) *Would the Project have a substantial adverse effect, either directly or through habitat modifications, on any species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?***

Finding: Less than significant with mitigation incorporated

During field surveys no valley elderberry bushes, which provide habitat for the valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*) were observed in the Project area. In addition, no California red-legged frog (*Rana draytonii*) or foothill yellow-legged frog (*Rana*

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boyllii) habitat exists on the Project site. Therefore, impacts to these three listed special status terrestrial/semi-aquatic species are considered less than significant and not addressed further in this section.

Impact BIO-01: Potential Disturbance of Nesting Special-Status Species, Migratory Birds, and Raptors during Construction

The WWTF and potential spray fields are surrounded by foothill oak woodlands. Trees and shrubs in the Project area can provide nesting habitat for a number of common migratory birds protected under the MBTA (See Tables 3.4-1 & 3.4-2). The breeding season for most birds is generally from March 1 to September 1.

During all Project activities (i.e. the installation of the pipes and sprinklers, the installation of groundwater monitoring wells, the excavation of the catchment basin, and construction of a pump station) could result in disturbance of potential nesting habitat for special-status migratory birds and raptors.

Noise associated with the proposed construction activities (should construction occur between March and September) could disturb actual nesting special status birds and raptors. This disturbance could cause nest abandonment and subsequent loss of eggs or developing young at active nests in or near the study area. Disturbances to nesting special status birds would be considered a “take” under CESA and the Federal ESA.

Therefore, removal of special status species nest habitat, or disturbance to special-status species while nesting, is considered a potential substantial adverse impact. Implementation of Mitigation Measures BIO-01 would reduce this impact to a less than significant level. Thus, this impact is considered less than significant with mitigation incorporated.

Mitigation Measure BIO-01: Avoid Disturbance of Tree- or Shrub-Nesting Special- and Non-Special-Status Migratory Birds and Raptors

Tree removal will be kept to a minimum, and will be assessed for nests prior to removal. Trees that contain active special status species, raptor, or migratory bird nests will not be removed without notification and permission from the USFWS and CDFG. If a tree contains an inactive nest, the tree can be removed and no further mitigation is required.

In addition, the District will implement one of the following measures, depending on the specific construction timeframe, to avoid disturbance of tree- or shrub- nesting special- and non-special-status migratory birds and raptors.

Tree trimming and removal will be avoided to the extent feasible.

1. If construction activities are scheduled to occur during the breeding season for these species (generally between March 1 and September 1), a qualified wildlife biologist will be retained to conduct the following focused nesting survey within the appropriate habitat:

Tree- and shrub-nesting surveys will be conducted in oak woodland habitats within or adjacent to the construction area to look for nesting migratory birds and raptors.

The surveys should be conducted within one week before initiation of construction activities at any time between March 1 and September 1. If no active nests are detected, then no additional mitigation is required.

If surveys indicate that migratory bird or raptor nests are found in any areas that would be directly affected by construction activities, a no-disturbance buffer will be established around the site to avoid disturbance or destruction of the nest site until after the breeding season or after a wildlife biologist determines that the young have fledged (usually late June to mid-July). The extent of these buffers will be determined by a wildlife biologist, and will depend on the level of noise or construction disturbance, line of sight between the nest and the disturbance, ambient levels of noise and other disturbances, and other topographical or artificial barriers. These factors should be analyzed to make an appropriate decision on buffer distances.

2. If construction activities begin before the breeding season (i.e., begin between September 1 and March 1) (pre-existing construction), then construction can proceed until it is determined that an active migratory bird or raptor nest would be subject to abandonment as a result of construction activities. (Pre-existing construction activities are assumed to be "full force," including site grading and infrastructure development; activities that technically initiate construction but are minor would not be considered full force.) Optimally, all necessary vegetation removal should be conducted before the breeding season (generally between March 1 and September 1) so that nesting birds or raptors would not be present in the construction area during construction activities. If any birds or raptors nest in the Project vicinity under pre-existing construction conditions, then it is assumed that they are habituated (or will habituate) to the construction activities. Under this scenario, the preconstruction survey described previously should still be conducted on or after March 1 to identify any active nests in the vicinity. Active sites should be monitored by a wildlife biologist periodically until after the breeding season or after the young have fledged (usually late June to mid-July). If active nests are identified on or immediately adjacent to the Project site, then all nonessential construction activities (e.g., equipment storage and meetings) should be avoided in the immediate vicinity of the nest site, but the remainder of construction activities may proceed.

Mitigation Measure BIO-01 Implementation

- **Responsible Party:** The District would ensure that pre-construction nest surveys are conducted.
- **Timing:** Immediately prior to construction. One raptor survey should be conducted within one week of initiating the Project (should the Project occur between May and September)
- **Monitoring and Reporting Program:** The nest surveys will be conducted by a qualified wildlife biologist. A survey report will be kept on file at the District offices.

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- **Standards for Success:** Special status species or other raptors and migratory bird nests will not be disturbed during the Project construction activities.

Impact BIO-02: Potential loss of CNPS-, federal- or state- listed botanical species

- A) During Construction (by excavation at the construction sites, and irrigation in the spray fields)
- B) During Operation (by over-watering in the spray fields).

Yellow-lip pansy monkeyflower (*Mimulus pulchellus*) (CNPS list 1B) is shown as occurring on the Project site. According to the 2011 CNDDDB, the exact location is unknown. The plant was recorded in the area in 1874, and was mapped by CNDDDB as best guess in vicinity of Murphys. It has not been observed since that observation in 1874. Whipple's monkeyflower (*Mimulus whipplei*) (CNPS list 1A) is also shown as occurring on the Project site. According to the 2011 CNDDDB, the plant was observed in the vicinity of Murphys in 1854, and many botanists have looked for the species since that time, but it has never been observed again. Grazing in the area may be the reason the plant has not been seen since 1854 (CNDDDB, 2011).

While no special-status species are known to occur on the Project site (CNDDDB, 2011), the potential exists that special status plants do occur within the Project site on the proposed spray fields. In general, plants appearing on the California Native Plant Society List 1 (Plants believed to be extant and rare threatened or endangered plants in California) and List 2 (Rare, threatened, or endangered plants in California but more numerous elsewhere) are considered to meet CEQA's Section 15380 criteria. Impacts to these species are therefore considered "significant" requiring mitigation.

Construction

Special status plant species could occur in the foothill woodland and pastureland associated with the proposed spray field areas. Due to the timing of this document, specific bloom period appropriate botanical surveys have not yet been conducted. If endemic or special status species do occur in the area, the grading and excavation activities associated with the spray irrigation and ditch berm installations could result in a potentially significant impact requiring mitigation.

Operation

In addition, the operation of the spray fields in previously un-irrigated areas could result in the alteration of bloom periods or demise of dry-adapted special status species. This impact is considered potentially significant and requires mitigation measures to reduce it to less than significant levels.

In order to reduce the construction related impacts to less than significant levels, Mitigation Measure BIO-2A and either Mitigation 2B (1) or a combination of Mitigation Measure 2B (2) and 2B (3) should be implemented.

In order to reduce the operation-related impacts to less than significant levels, Mitigation Measure BIO-02A must be implemented. If special status species are found in the spray field area either Mitigation Measure 2B(1) or both Mitigation Measure 2B(2) and 2B(3) should be implemented.

Mitigation BIO-02A: Conduct Pre-construction Botanical Surveys during appropriate blooming periods.

Prior to construction, and preferably in the final design phase of the Project, botanical surveys will be conducted to confirm the presence or absence of the species listed in Table 3.4-1 as well as other potentially occurring special status species. These surveys will aid the District in designing to avoid and minimize impacts to CNPS 1.B. listed species, where feasible.

Mitigation BIO-02B: Avoid, Minimize and/or Compensate for loss of CNPS 1.B listed and other Special Status Botanical Species.

With respect to the potential inundation or grading loss of special status botanical species, the District will implement either Mitigation Measure 2B (1) or a combination of Measures 2B (2) and (3) below to eliminate or minimize the potential loss of potentially occurring special status botanical species.

1. **Complete Avoidance:** Avoid impacts to the species where special status species are found. During the pre-design planning phase of the Project, based on surveys conducted during the appropriate blooming periods, the irrigation pipeline and ditch berm system will be aligned such that it avoids patches of special status botanical species. Complete avoidance will be accomplished with the use of exclusion fencing and species awareness programs.
2. **Partial Avoidance:** Once the exact location is determined and if complete avoidance is not feasible due to engineering constraints, the District will minimize the impact by limiting the amount of the special status species patch (i.e., partial avoidance) of plants to be affected by the Project. Partial avoidance will be accomplished with the use of exclusion fencing and species awareness programs AND restoration activities outlined in Mitigation Measure BIO 2B (3) below.
3. **Restoration:** If, measure 2B (1) is not feasible, the District will rectify/ compensate for the impact by repairing, rehabilitating, or restoring the impacted environment and re-planting the soil/seed bank collected from the area of disturbance. Prior to excavation activities, the District will ensure a separate area is allocated for the preservation of the topsoil and seed bank. Once installation is completed, the District will restore the site to its original conditions and replace the topsoil. In the restoration areas, debris will be removed and access controlled through the use of exclusion fencing.

Mitigation Measure Implementation

- **Responsible Party:** The District would ensure that pre-construction botanical surveys are conducted by a qualified botanist and sensitive areas marked.

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- **Timing:** One botanical survey of the effluent pipeline route should be conducted during the appropriate blooming periods preferably prior to the final design phase of the Project and prior to the initiation of construction. If special status species are found, spray field monitoring will occur during year 0, 1, and 2 to determine the impacts of watering on these species.
 - **Monitoring and Reporting Program:** The survey will be conducted by a qualified wildlife botanist and a survey memo will be kept on file at the Murphys Sanitary District office. The report will include a description of the exact location of the special status plants in the Project footprint area.
 - **Standards for Success:** Disturbance to special status or CNPS listed plants will be avoided, minimized, and/or compensated during the effluent pipeline construction.
- b) *Would the Project have a substantial adverse effect on any riparian habitat, sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish or U.S. Fish and Wildlife Service?***

Oak woodland and forest communities are identified as sensitive natural communities by CDFG because of their declining status statewide and the important habitat values they provide to both common and special status plant and animal species. This habitat type exists within the proposed spray fields. The proposed spray fields will occur on previously disturbed (grazed/irrigated) lands and have sporadic oak trees throughout. Sprinklers may be installed near some of the oak trees and could potentially affect the health of the oaks over time. See Section e below for oak tree impacts and mitigation.

- c) *Would the Project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?***

Finding: Less than significant with mitigation incorporated

Impact BIO 3: Potential Impacts (sedimentation or direct dredge and fill) in Wetlands or Other Waters of the US**Spray field Installation and Operation**

The installation of effluent spray fields would not result in a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act through direct removal, filling, hydrological interruption, or other means. There are no wetlands in the vicinity of the WWTF. The maintenance of existing ponds is exempt from CWA Section 404 because they are wastewater ponds (40 CFR Part 230.3 Subpart A (t)). Minor drainage swales are located on field #1 and field #2. These swales would not likely be considered waters of the U.S. because they do not have defined bed and banks. Regardless, because the District aims to avoid allowing irrigation effluent into drainages, the ditch berm system will likely be designed to avoid such swales. In addition, the berm-catchment basins will be constructed in upland area at

the lowest end of the ditch berm systems to catch effluent in the event that a sprinkler head breaks. There are no riparian areas at the Project site. Therefore, the addition of effluent spray fields and the related impacts to waters of the US and riparian habitats are considered less than significant.

- d) *Would the Project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?***

Finding: Less than significant with mitigation incorporated

Impact BIO-4: Potential Impact to Wildlife Movements or Migration from Construction Activities

Spray field Installation and Operation

Construction activities associated with the effluent spray fields will occur in open fields that are not fenced in. The area will remain open for wildlife to use and move through. After the sprinklers have been installed, the Project area would be similar to its present state and movement through the Project area will be similar to pre-Project conditions. The Project is not expected to interfere substantially with the movement of wildlife species. The Project would have a less than significant impact on the movement of wildlife in the Project area.

- e) *Would the Project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?***

Finding: Less than significant with mitigation incorporated

IMPACT BIO-05: Potential Loss of Oak Trees during operation (from spray field impacts to dry adapted species).

Because Calaveras County does not have an Oak Tree Ordinance yet, the CEQA Oak Woodlands Conservation Law Senate Bill 1334 (Kuehl) applies to the proposed County associated Project activities (i.e. if the county issues a grading permit this bill would apply). In compliance with this policy mitigation measures are in place to avoid, minimize and compensate for impacts to oak trees in the Project area. In accordance with this law, oak trees five inches or more in diameter at breast height (dbh or 4.5 ft.) will be subject to compensatory mitigation measures.

Spray field Operation (Dry Season Irrigation)

Interior live oak (*Quercus wislizenii*) and blue oak (*Quercus douglasii*) are oaks that have evolved and are adapted to dry soil conditions. They grow in upland areas and on dry canyon hillsides. Implementation of a spray field irrigation program during summer months in an area where oak roots are typically dry could cause over moisturizing of roots, affect growth, cause root-rot, or lead to a weakened tree and invite infection. Dry adapted oak trees could experience stunted growth or demise (over the long term) if irrigated at constant rates during dry months.

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Over the long term, this impact (under Senate Bill 1334) would be considered a significant impact. In order to ensure consistency with Senate Bill 1334 and mitigate this potentially significant impact that would manifest itself over the long term, the District will implement Mitigation Measure BIO-05A or a combination of mitigation measures BIO-05C & D to reduce this impact to less than significant levels and comply with Senate Bill 1334

Mitigation Measure BIO-05 (A, B and C): Consistency with the Oak Woodlands Conservation Law [Senate Bill 1334 (Kuehl)] - Conserve Oak woodland habitat

- A. **Avoidance:** Oak trees with a DBH greater than 6 inches will be avoided, where feasible. If oaks to be avoided are located near areas of heavy construction traffic (i.e. the traffic is within one times the distance from the bole to the drip line), oak tree exclusion fences will be placed around the edge of the tree's drip line ensure avoidance of root compaction during construction.
- B. **Monitoring and Restoration:** In spray field areas, either irrigation of dry adapted oaks (the blue oaks) will be avoided by a 10 foot buffer or their health monitored every five years (for a total of 10) by an arborist and compared against a nearby control (non-irrigated group). If at the time of each evaluation, the mortality rate in the irrigated patches is significantly different than the control patch, Mitigation Measure BIO-05 (C) will be implemented.
- C. **Restoration:** The mortality of oaks with a DBH greater than or equal to five inches will be compensated by either oak preservation at a ratio of 2:1, oak restoration at a ratio of 2:1 (or a 3:1 ratio for saplings/acorn-based restoration), or an in-lieu payment to the Oak Woodland Conservation Fund in an amount equivalent to the cost of implementing the restoration or preservation alternatives. This mitigation must be initiated prior to initiating excavation activities (Senate Bill 1334, Kuehl).

Mitigation Measure Implementation

- **Responsible Party:** The District will ensure the construction contractor (with the assistance of a biologist as necessary) marks oak trees to avoid and place exclusion fencing around oaks that are located near the construction areas. Such measures will limit compaction or other impacts to the oak roots. If avoidance is not possible, the District will either conduct on-site oak plantings or buy into an oak conservation trust at no less than a 1:1 (inch for inch DBH) ratio. The District will also be responsible for spray field monitoring of blue oaks every five years (for a total of 10).
- **Timing:** Prior to initiating construction activities.
- **Monitoring and Reporting Program:** Murphys Sanitary District will verify avoidance flagging and/or document compensatory mitigation.
- **Standards for Success:** Oak trees will be avoided to the extent feasible and removal will be compensated in accordance with Senate Bill 1334 in the absence of an approved county plan.

IMPACT BIO-06: Inconsistency with other Local or Regional Plans and Policies

Finding: Less than significant

The principal regional and local documents governing conservation and open space-associated land use in the Project area is the Calaveras County General Plan. The General Plan is currently undergoing a phased update. The 1996 Open Space and Conservation Elements contain goals and policies relative to proposed Projects in the County (Refer to the Regulatory Setting of this Section for Details). Calaveras County General Plan Goals, Policies, and Implementation Programs in Conservation and Open Space Elements that might pertain to the proposed WWTF Improvement Project were outlined in the Regulatory Setting at the beginning of this section.

The proposed Project is considered consistent with the goals and policies of the Calaveras County General Plan as they pertain to biological resources. The Project is not located in County-designated sensitive habitats (Goal and Policies V-1). The nearest habitat of this type is a golden eagle nesting area along the southern shores of New Hogan Reservoir.

The proposed Project will not affect any wetlands or other waters of the U.S. The Project has also been designed to avoid impacts to the drainage swales on the property.

Therefore, the Project is consistent with the Calaveras County and the Murphys & Douglas Flat Community Plan goals and policies, and the State oak tree ordinances and therefore impacts are considered less than significant.

- f) *Would the Project conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?***

Finding: Less than significant

The proposed Project would not conflict with an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. There are no habitat conservation plans or other natural community conservation plans prepared by the County. The Murphys Douglas Flat Community Plan (1988) does not have a habitat conservation plan. Therefore, the potential Project related impacts to adopted local or regional conservation plans is less than significant.

3.5 CULTURAL RESOURCES

3.5.1 Setting

The following information was provided by Judith Marvin with Foothill Resources, Ltd. (2011).

Mining: The property within the Murphys Sanitary District Project APE is located on the site of two placer mines: the Central Hill Placer Mine, patented September 10, 1879; and the Takes What's Left Placer Mine, patented March 11, 1892, and worked as one property in the 1890s.

The mines are located on the Murphy, or Central Hill Channel, a Tertiary river channel enriched by numerous quartz veins in the Murphys area. As noted in 1911:

The Central Hill mine, half a mile south of Murphy, shows a deep, narrow channel carrying coarse, subangular gravel, capped by volcanic beds. The gravel was rich and is reported to have produced several hundred thousand dollars. In early days it was worked by the hydraulic process at the north end, where the elevation of the bedrock is 2,185 feet. A drain tunnel, 3,300 feet in length, was run in 1894 from Douglas Flat and in that year the gravel was worked by the hydraulic processes through this outlet. This work showed that the main channel and its capping were cut by a transverse channel filled with rhyolite and that this intersecting body was again cut by a small watercourse. In 1901 the property was idle. According to Storms the grade of this channel is 300 feet to the mile southward; this indicates that it is rather a tributary rather than a main trunk (Lindgren 1911:201).

When formed in the 1850s, the Central Hill Mining Company consisted of ten men, all from Maine, each owning a working share in the company.

Water: Water for mining in Murphys, Angels Camp, and environs was provided by the Union Water Company, established in Murphys in 1851 to bring water from the Stanislaus River to the mines in Murphys and beyond. Water reached Murphys in 1853, and was extended to Angels Camp that same year. One of the ditches, the North Ditch, coursed westerly from the fountainhead on Angels Creek near the old Utica Powerhouse to the Oro Y Plata mine and, via suspension flume to the Central Hill mine. Shortly thereafter, water was furnished to Douglas Flat through the South Ditch, which branched southerly from the fountainhead (Bishop 1980:10).

In order to obtain water for their mining operations, the Central Hill Mining Company contracted with the firm of Emery and Company to complete a suspension flume from the Union Water Company North Ditch across the Angels Creek Canyon to the mine. As described:

The flume was built on the penstock, or water-tight box principle, and was held up with two wire suspension cables one and a half inches in diameter and one thousand feet long, with two guy cables to support the towers over which cables were strung. The north tower was ninety-four feet high and the southern tower 124 feet high. The distance from tower to tower was 740 feet. The cables were firmly anchored at the ends in the bedrock. Perpendicularly from the flume down to the bed of the creek, it was 290 feet. The box would carry fifty inches of water (San Andreas Independent, November 14, 1857; in Wood 1948:14).

The cost was \$6,000, of which \$4,500 was spent for materials. The work was completed in three months, with the first water delivered on November 11, 1857. The box was blown down in a violent storm in December 1859, but the towers and cable were undamaged. The Central Hill operators then substituted cheaper and sturdier iron pipe in place of the flume, but that too was damaged by wind and storms and was eventually replaced by an iron pipe siphon down the canyon and over the creek. This system was

used until the Central Hill closed in 1898 (Wood 1948:14-15). At some point, additional water was also brought through a branch ditch westerly from the South Ditch of the Union Water Company, which coursed southerly from Murphys to Carson Hill and vicinity.

Worked as a drift and hydraulic mine since the 1850s, the Central Hill was active again intermittently in the period from 1888-1897. In 1892-94 a drain tunnel was run from Douglas Flat, after which hydraulicking began again. In the period from 1895-1900, 14,400 yards of gravel was washed by William Thomas and others; during 1896 alone, \$14,600 was yielded. Eventually the debris from the hydraulicking operation had filled up the flat in Douglas Flat and the California Debris Commission required it to cease operations (Clark 1962:192-193).

In the late 1920s, the mine, along with the Ohio, Garabaldi, Allen Thomas, and other placer mining claims at Douglas Flat on the east side of Table Mountain, were owned by Thomas & Miller (Utica Mining Company 1929), and in 1962 by William Thomas, Jr., of Mariposa (Clark 1962:192).

At some point, the hydraulic pit on the east side of Six Mile Road began use as a dump site for the community of Murphys. Townsfolk dumped there on a regular basis, with the garbage burned every Monday. After the new county landfill was developed on Red Hill Road, the old dump was abandoned and subsequently acquired by the Murphys Sanitary District for its wastewater treatment facility.

3.5.2 Regulatory Setting

CEQA, PRC Section 21083.2, and CEQA Guidelines 15064.5 include provisions for significance criteria related to archaeological and historical resources. A significant archaeological or historical resource is defined as one that: (a) meets the criteria of the California Register of Historical Resources (CRHR), (b) is included in a local register of historical resources, (c) or is determined by the Lead Agency to be historically significant. A significant impact is characterized as a “substantial adverse change in the significance of a historical resource.”

PRC Section 5024.1 authorizes the establishment of the CRHR. Any identified cultural resources must therefore be evaluated against the CRHR criteria.

California Register of Historical Resources

In order to be determined eligible for listing in the California Register of Historical Resources (CRHR), a property must be significant at the local, state, or national level under one or more of the following four criteria as defined in Public Resources Code 5024.1 and CEQA Guideline 15064.5(a).

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1. It is associated with events or patterns of events that have made a significant contribution to the broad patterns of the history and cultural heritage of California and the United States.
2. It is associated with the lives of persons important to the nation or to California's past.
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values.
4. It has yielded, or may be likely to yield, information important to the prehistory or history of the state and the nation.

In addition to meeting one or more of the above criteria, a significant property must also retain integrity. Properties eligible for listing in the CRHR must retain enough of their historic character to convey the reason(s) for their significance. Integrity is judged in relation to location, design, setting, materials, workmanship, feeling, and association.

Public Resources Code

PRC Section 21083.2 governs the treatment of unique archaeological resources, defined as "an archaeological artifact, object, or site about which it can be clearly demonstrated" as meeting any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.
4. If it can be demonstrated that a Project will cause damage to a unique archaeological resource, appropriate mitigation measures shall be required to preserve the resource in place and in an undisturbed state. Mitigation measures may include, but are not limited to, 1) planning construction to avoid the site, 2) deeding conservation easements, or 3) capping the site prior to construction. If a resource is determined to be a 'non-unique archaeological resource', no further consideration of the resource by the Lead Agency is necessary.

Encountering Human Remains

The possibility of encountering human remains cannot be entirely discounted. Pursuant to PRC Section 7050.5 if human graves are encountered, work should halt in the vicinity and the Calaveras County Coroner should be notified immediately. At the same time, an archaeologist should be contacted to evaluate the situation. If human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification.

3.5.3 Impact Analysis

This section was developed by Stantec pursuant to Section 15064.5 of CEQA. The purposes of this study are to (1) identify and record cultural resources on the Project site, (2) gather information to determine if the proposed Project will have an adverse effect on any cultural resources identified within the Project footprint, and (3) recommend procedures for avoidance or mitigation of adverse effects to resources eligible for inclusion in the California Register of Historical Resources (CRHR). The methodologies for the identification of cultural resources are described below. The summary of cultural resources information presented below was provided by Judith Marvin with Foothill Resources (2011).

Background research was conducted by Judith Marvin with the files of Foothill Resources in Murphys, California. These files included review of historical maps, publications, documents, and archaeological and historical reports. Ralph Emerson, 17-year employee of the Murphys Sanitary District, also provided invaluable information on features that were no longer existent. See References Cited or Consulted in Section 4.0 for a complete listing.

Field Survey

Stantec Cultural Resource Specialist, Meagan O'Deegan conducted a cultural resource field survey of the Project area on October 14, 2011. During this survey, a historic mine shaft was found and noted. At the request of Stantec, on November 10, 2011, Judith Marvin of Foothill Resources conducted a reconnaissance survey of the previously identified mine shaft located on the Murphys Sanitary District (MSD) Project Area of Potential Effects (APE). While surveying the area, a ditch was identified, located ca. 54 feet southerly from the mine shaft. The ditch was walked easterly up the hillside to its confluence with a large, deep, branch ditch from the South Ditch of the Union Water Company system.

Description and Evaluation of Historical Resources

As a result of these surveys, three cultural resources, all related to early mining activities, were identified: the pit of the hydraulic mine itself, a mine shaft, and a water ditch.

1. **Storage Pond/Central Hill Mine Pit:** The large waste water storage pond immediately north of the APE is located in the southerly pit of the Central Hill Mine. Hydraulic mining began in the 1850s and continued through 1898, with the pit a result of that activity. A 3,300 foot long drain tunnel, located in the bottom of the pit, was dug in 1892-94 to carry the wastes through Table Mountain to the east side of Douglas Flat, to where it was contained by a debris dam. In recent years, the original plug deteriorated and the waste water washed down into Douglas Flat, but the tunnel, located in the bottom of the pond, is now covered by a concrete cap, ca. 10 x 10 square feet.

Evaluation: After it was shut down, the mine pit was used as a community dump for many years, and then as a waste water storage pond. Although it is associated with

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hydraulic mining in the Murphys areas from the 1850s to 1898, its integrity has been compromised by its later usages. It is also a fairly typical example of a hydraulic pit, and the northerly segment of the pit (across Six Mile Road) is a better example, having undergone no alterations since its abandonment. It does not appear eligible for listing on the National or California registers, and its information potential has been preserved through this recordation. It does not require additional study or preservation.

2. **Mine Shaft:** This feature is a vertical mine shaft, approximately six by six feet, and 30 feet deep, and enclosed by a wood and wire fence.

Evaluation: This shaft is associated with mining activities on the Central Hill Channel, but although located on the Take What's Left mine (patented in 1892), its history is unknown. It could have been sunk at any time between the 1850s and the early 1900s by unknown persons. Mine shafts are ubiquitous in the California Mother Lode, and throughout the mining regions of the west, and this is a typical example of a common resource type. It has been recorded and its information potential thereby preserved. It does not require additional study or preservation.

3. **Mining Ditch:** This is an abandoned earthen-berm ditch that took water from the South Ditch of the Union Water Company and continued westerly to the former Central Hill mine. Measuring from ca. 5 feet deep at its eastern end where it is cut into the bedrock, its depth decreases as it courses down the hillside to ca. 2 ½ feet at its midpoint, to 1 foot at the point where it is bisected by the present WWTF road on the east side of the easternmost treatment facility pond. At some points the ditch measures 6 feet from berm to berm; at others ca. 4 feet.

Evaluation: Although this ditch is associated with early-day placer and hydraulic mining on the Central Hill Channel, it does not appear eligible for listing on the National or California registers. It evidently provided water to the Central Hill mine for hydraulic purposes, but the date of its construction is unknown, as the South Ditch operated from the mid-1850s to the 1930s, and the mine from the 1850s to 1898. The ditch is a typical example of a common resource type found along all rivers, creeks, streams, drainages, and larger ditch systems in the Mother Lode region of California. Constructed initially for placer mining purposes, many were reused in the later period to provide irrigation water to fields and farms when the placers played out and the lands were used for agriculture. The ditch has been recorded and its information potential thereby preserved. It does not require additional study or preservation.

Table 3.5-1 and the section below discuss the potential Project-related impacts relative to cultural resources.

Table 3.5-1: CEQA Checklist for Assessing Project-Specific Potential Impacts to Cultural Resources

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
V. CULTURAL RESOURCES. Would the Project:				
a) Cause a substantial adverse change in the significance of a historical resource as identified in Section 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

a) *Would the Project cause a substantial adverse change in the significance of a historical resource as identified in Section 15064.5?*

Finding: Less than significant with mitigation incorporated

As a result of the field surveys, three cultural resources, all related to early mining activities, were identified: the pit of the hydraulic mine itself, a mine shaft, and a water ditch. Evaluation of these resources determined that these cultural resources do not appear eligible for listing on the National or California registers, and the resources information potential has been preserved through recordation. It does not require additional study or preservation and no specific mitigation is necessary for treatment of these resources. That said, the District will try to avoid these resources in the design process, to the extent feasible. The possibility for encountering unanticipated cultural resources during construction of the proposed Project does exist. Therefore, Mitigation Measure CULT-01 is required to reduce impact to a less than significant level.

Mitigation Measure CULT-01: Proper handling of Inadvertent Discovery of Historical Resources.

If additional cultural resources are encountered during Project construction, construction shall be halted immediately in the subject area and a qualified professional archaeologist will be consulted. Historic resources may include stone or wood foundations or walls, structures or remains with square nails, and refuse deposits.

Mitigation Measure Implementation

- **Responsible Party:** Murphys Sanitary District would ensure the appropriate treatment for any discovery of cultural resources during construction.
- **Timing:** During all ground disturbing activities.

- **Monitoring and Reporting Program:** The recording and evaluation of any newly identified cultural resources will be conducted by qualified professional archaeologist and a report will be kept on file at the District
 - **Standards of Success:** The proper recording, evaluation, and treatment of any newly identified cultural resources.
- b) *Would the Project cause a substantial adverse change in the significance of an archaeological resource as identified in Section 15064.5?***

Finding: Less than significant with mitigation incorporated

As a result of the field surveys, three cultural resources, all related to early mining activities, were identified: the pit of the hydraulic mine itself, a mine shaft, and a water ditch. Evaluation of these resources determined that these cultural resources do not appear eligible for listing on the National or California registers, and the resources information potential has been preserved through recordation. It does not require additional study or preservation. The possibility for encountering cultural resources during construction of the proposed Project can never be fully discounted. Therefore, Mitigation Measure CULT-01 (above) is required to reduce impact to a less than significant level.

- c) *Would the Project cause a substantial adverse change in the significance of an archaeological resource as identified in Section 15064.5?***

Finding: Less than significant with mitigation incorporated

As a result of the field surveys, three cultural resources, all related to early mining activities, were identified: the pit of the hydraulic mine itself, a mine shaft, and a water ditch. Evaluation of these resources determined that these cultural resources do not appear eligible for listing on the National or California registers, and the resources information potential has been preserved through recordation. It does not require additional study or preservation. However, the possibility for encountering cultural resources during construction of the proposed Project does exist. Therefore, Mitigation Measure CULT-01 (above) is required to reduce impact to a less than significant level.

- d) *Would the Project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?***

Finding: Less than significant with mitigation incorporated

There are no known significant paleontological sites or deposits within the Project area. However remote, the possibility for encountering paleontological resources during construction of the proposed Project does exist. Therefore, Mitigation Measure CULT-01 (above) is required to reduce impact to a less than significant level.

- e) *Would the Project disturb any human remains, including those interred outside of formal cemeteries?***

Finding: Less than significant with mitigation incorporated

There are no known human burials or remains within the Project area. However remote, the possibility for encountering human remains during construction of the proposed Project does exist. Therefore, Mitigation Measure Cult-02 is required to reduce impact to a less than significant level.

Mitigation Measure CULT-02: Proper Handling of Inadvertent Discovery of Human Remains

If human remains are encountered, work should be halted in the vicinity and the County Coroner shall be notified immediately pursuant to PRC Section 7050.5. At the same time, an archaeologist shall be contacted to evaluate the situation. If human remains are of Native American origin, the Coroner must notify the Native American Heritage Commission within 24 hours of this identification.

Mitigation Measure CULT-02 Implementation

- **Responsible Party:** Murphys Sanitary District and Calaveras County Coroner would ensure the appropriate treatment for any discovery of any human remains during construction.
- **Timing:** During all ground disturbing activities.
- **Monitoring and Reporting Program:** The recording and evaluation of any newly identified human remains will be conducted by qualified professional archaeologist and a report will be kept on file at Murphys Sanitary District.
- **Standards of Success:** The proper recording, evaluation, and treatment of any newly identified human remains.

3.6 GEOLOGY AND SOILS

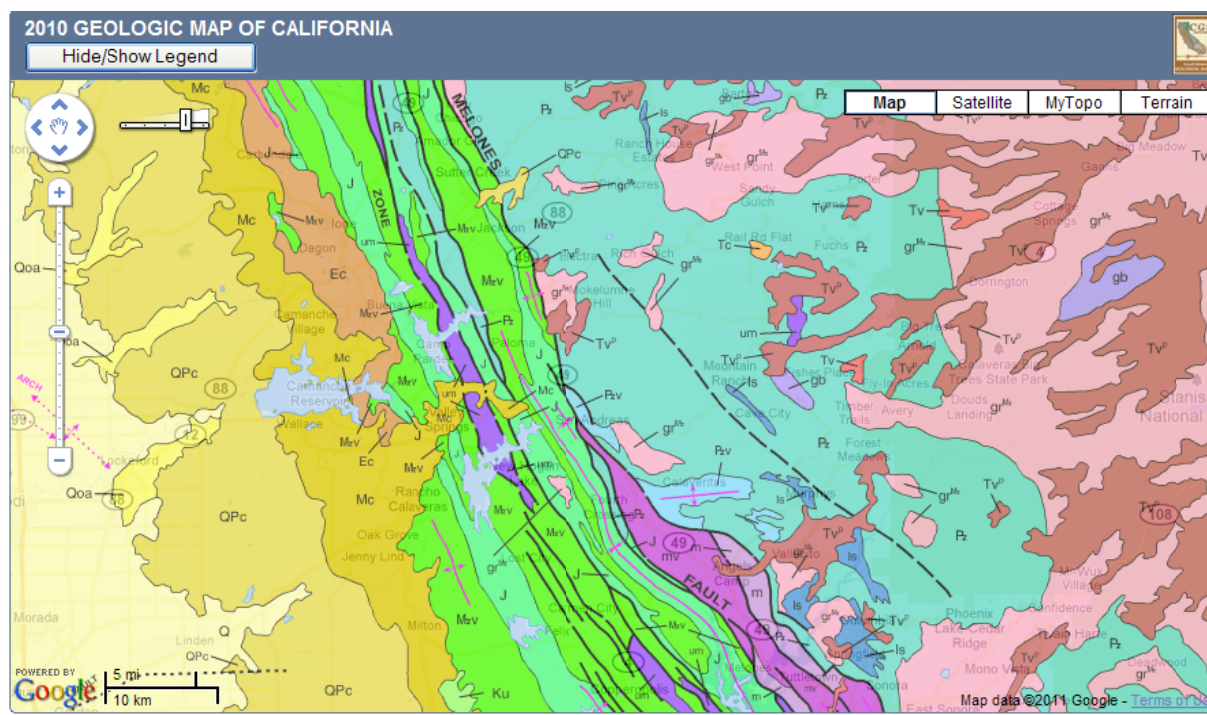
3.6.1 Setting

The regional geology of the Project area consists primarily of Tertiary pyroclastic and volcanic mudflow deposits overlying undivided Paleozoic metasedimentary rocks, while in some areas the Tertiary volcanic deposits are absent (Saucedo and Wagner, 1992). The Melones Fault zone is approximately five miles west of the Project area, and an unnamed fault is mapped approximately 1 mile north east of the Project area (Saucedo and Wagner, 1992). These faults are pre-Quaternary (older than 1.6 million years) movement and there has been no recent movement along these faults. An excerpt from the California Geologic Map (CGS, 2010) depicting the area around the Project area is presented as Figure 3.6-1.

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☆ Project Area.

Tv^P – Tertiary Pyroclastic and Volcanic Mudflow Deposits

Pz – Paleozoic Metasedimentary Rocks

Figure 3.6-1: Regional Geology of the Project Area

(Excerpted from the 2010 Geologic Map of California. Available at <http://www.quake.ca.gov/gmaps/GMC/stageologicmap.html>)

There are no principal faults in the area that are identified and mapped pursuant to the Alquist-Priolo Earthquake Zoning Act. Moreover, ground shaking due to an earthquake is estimated to be low (Peak ground acceleration of 0.09 to 0.14 times gravity depending on soil type) (CGS, 2010).

Soils

The Project area occurs within the boundaries of the Soil-Vegetation Survey of Calaveras County conducted by the California Cooperative Soil Vegetation Survey Staff between 1965 through 1972. Copies of the soil survey maps of the Project area were obtained by contacting the University of California Cooperative Extension. A handbook accompanying the maps of Calaveras County was published by the Calaveras County Farm Advisors Office (Calaveras Co.) in 1982. This soil survey did not differentiate soils associated with large tracts of alluvial deposits and/or pastured or in agriculture production, including intensively cultivated land and areas of urban or industrial uses. As such much of the Project area soils were not differentiated.

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Where specific soils were identified for the Project area, the majority of the site is mapped as the Toomes gravelly loam, while small areas and soils adjacent to the Project area are mapped as Inks cobbly loam and Coarsegold loam. The Toomes soil at the site ranges from very shallow to shallow and has developed in volcanic tuff breccia. The well drained soil is in Hydrologic Soil Group D and has moderate permeability. Erosion hazard is moderate. This soil phase was estimated to have low suitability for intensive range use and to be unsuited for irrigable land (Calaveras Co., 1982).

The excessively drained Inks soil is in Hydrologic Soil Group D and has moderate permeability. This shallow soil has developed in volcanic sediments. Erosion hazard is slight. This soil phase was estimated to have low suitability for intensive range use and questionable to low suitability for irrigable land (Calaveras Co., 1982).

The well drained Coarsegold soil is in Hydrologic Soil Group B and has moderate permeability. This soil is moderately deep to deep and has developed in metasedimentary rocks. Erosion hazard is slight. This soil phase was estimated to have medium suitability for intensive range use and low suitability for irrigable land (Calaveras Co., 1982).

3.6.2 Regulatory Setting

Seismic Related Regulations

The Alquist Priolo Zoning Act requires the mapping of zones around active faults in California, in an effort to prohibit the construction of structures for human occupancy on active faults and minimize damage due to rupture of a fault. The Seismic Hazard Mapping Act is intended to delineate zones where earthquakes could cause hazardous ground shaking and ground failure. Both of these acts require local cities and counties to regulate activities within these zones. Additionally, Title 24 of the California Code of Regulations, the California Standard Building Code, contains specific requirements for construction with respect to earthquakes intended to be protective of public health.

Stormwater Quality and Erosion Control Regulations

A Statewide General Construction Stormwater Discharge (GCSD) Permit (Order No. 2009-0009-DWQ) was adopted by the State Water Resources Control Board (SWRCB) on September 2, 2009 for construction Projects that disturb greater than one acre or have the potential to impair water quality. The permit is required regardless of the time of year construction occurs. This permit requires a Notice of Intent to be submitted, a Stormwater Pollution Prevention Plan (SWPPP) to be developed and implemented, and monitoring to be conducted. The SWPPP must contain best management practices (BMPs), other measures to prevent pollution, and a construction timeline. The SWPPP shall demonstrate compliance with erosion and sediment control standards and identify responsible parties. Furthermore, a BMP maintenance program is required by the SWPPP, which should include proper installation and

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thorough and frequent inspection to ensure the effectiveness of specific BMPs. The Project will require coverage under this permit.

3.6.3 Impact Analysis

Table 3.6-1 and the section below discuss the potential Project impacts relative to geology and soil-related issues.

Table 3.6-1: CEQA Checklist for Assessing Project-Specific Potential Impacts to Geology and Soils

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
VI. GEOLOGY AND SOILS -- Would the Project:				
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Be located on strata or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) *Would the Project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:*

- i) *Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.***

Finding: Less than significant

The Project area is not located in a fault zone delineated on the California Geological Survey, Alquist-Priolo Earthquake Fault Zoning map (CGS, 2010). The nearest fault, Melones Fault zone, is approximately 15 miles from the Project site and has not exhibited Quaternary movement. The Project would not subject people or structures to adverse effects due to rupture of a known fault because there are no known active faults in the Project area, based on information provided by the California Geological Survey maps (CGS, 2010). Therefore, potential seismic impacts are considered less than significant.

ii) *Strong seismic ground shaking*

Finding: Less than significant

The Project area is susceptible to low ground shaking (<0.14 g) associated with a major earthquake on nearby active faults, in which slight damage to ordinary structures and negligible damage to well designed and constructed structures is possible. The Project will be designed and constructed to withstand seismic ground shaking. Therefore, potential liquefaction impacts are considered less than significant.

iii) *Seismic related ground failure, including liquefaction*

Finding: Less than significant

Soils underlying the facility are generally shallow to bedrock, very coarse textured, well drained, and not likely susceptible to liquefaction. Therefore, impact is less than significant.

iv) *Landslides*

Finding: Less than significant

Expansion of the irrigation area on the Project area will avoid steeply sloping areas, and the irrigation system will generally be placed on existing grade or stabilized more moderate grades to prevent landslides. Therefore, the potential for landslides is considered less than significant.

b) *Would the Project result in substantial soil erosion or the loss of topsoil?*

Finding: Less than significant with mitigation incorporated

The Project generally includes clearing, excavation, grading, and trenching as necessary to install the effluent irrigation and containment system. These actions will move and expose soil to the elements and could represent a significant impact if not properly controlled. However, for any disturbance area greater than 1 acre, the District will require that the selected contractor prepare an erosion control plan and a storm water pollution prevention plan (SWPPP) prior to construction. The plans should provide, whenever practicable, measures to trap sediment and prevent soil erosion or transport to nearby surface water courses or storm drains. These plans shall be implemented and inspected accordingly in compliance with the SWPPP throughout the construction process.

Much of the Project area has moderate erosion hazard and high potential for runoff, and as such, care will need to be taken in sighting spray fields as well as the timing of irrigations. A site specific soil evaluation should be conducted to identify avoidance areas, as well as soil hydraulic properties to properly design the irrigation system. Mitigation measure GEO-01 requires site specific soil data to be collected for designing the disposal system, and a properly designed and operated spray field is likely to reduce naturally occurring erosion, by increasing vegetative cover and root density.

The expansion of the irrigation system will be designed to minimize soil erosion by incorporating vegetative and mechanical soil stabilization methods where necessary. The area will be seeded and irrigated sufficiently to establish vegetation immediately after construction and prior to winter precipitation. A long term erosion control plan will be implemented in which erosion control measures are monitored, maintained, and improved where necessary. The implementation of Mitigation Measure GEO-01 and GEO-02, should minimize any substantial soil erosion or loss of topsoil, reducing impact to less than significant levels.

Mitigation Measure GEO-01: Collection of Site Specific Soil Information

In order to ensure the disposal system is properly sited, designed, and operated, the soil resource will be inventoried including assessments of soil hydraulic properties and erosion hazard. The use of site specific data will reduce the potential impact to less than significant levels, and likely reduce naturally occurring erosion at the site.

Mitigation Measure GEO-01 Implementation

- **Responsible Party:** The District will require the Project be designed based on site specific soil data. The District will ensure inherent erosion and sedimentation control are included in the design, are properly constructed, and are maintained and upgraded as necessary.
- **Timing:** During the design period and prior to construction.
- **Monitoring and Reporting Program:** The recording of the Soil Resource Inventory will be done by the District and kept on file at the District office.

- **Standards of Success:** Minimize on and off site erosion and prevent introduction of significant amounts of sediment into any stream or drainage.

Mitigation Measure GEO-02: Sedimentation and Erosion Control Measures

The contractor shall prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) for all grading activities impacting greater than one acre in accordance with the *Statewide General Construction Stormwater Discharge Permit* (RWQCB, 2009) to ensure erosion and sedimentation from the Project is kept to a minimum. The site contractor shall prepare and implement the SWPPP, and standard erosion and sediment control practices will be used during and after construction to control accelerated soil erosion and sedimentation and ensure it will not adversely affect the San Joaquin River or other associated drainages.

Straw bales, coir rolls, hydroseeding and other erosion protection devices will be used in areas of bare soil, and in drainages near all areas of disturbance to reduce surface runoff velocities and to prevent sediment from entering drainages. Maintenance of erosion and sediment control measures during the construction phase will be conducted on a weekly basis.

The Project will be designed with the primary concern of long-term erosion and sedimentation control. The irrigation area will be designed to minimize runoff generation and control erosion and sedimentation. The District will inspect the performance of these inherent control practices annually and maintain, repair, and/or augment where necessary.

The re-vegetation of all graded and disturbed areas of bare soil will be completed within six months, or prior to the rainy season. Seed mixes will be used to replicate the naturally occurring vegetation, with the exception that the irrigation area will be seeded with grass species suitable for extensive soil cover, climatic conditions, and irrigation. Initial seeding of the irrigation area will occur immediately after sprinkler installation, and the site will be irrigated to establish cover prior to the winter "wet" season.

Mitigation Measure GEO-02 Implementation

- **Responsible Party:** The District will require the contractor to develop and implement the Stormwater Pollution and Prevention Plan (SWPPP) and re-vegetate the site for disturbance areas greater than one acre. The District will ensure inherent erosion and sedimentation control are included in the design, are properly constructed, and are maintained and upgraded as necessary.
- **Timing:** During and immediately after construction activities, and annually after the snow melt runoff season.
- **Monitoring and Reporting Program:** The recording and evaluation of the SWPPP and long-term control practices will be conducted by the District and kept on file at the District office.
- **Standards of Success:** Minimize on and off site erosion and prevent introduction of significant amounts of sediment into any stream or drainage.

- c) *Would the Project be located on strata or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?***

Finding: Less than significant

The Project is located on stable, relatively shallow medium textured soils, with considerably amounts of rock fragments. The soils at the site are generally not susceptible to landslide or lateral spreading, and are not likely susceptible to subsidence or liquefaction. Furthermore, the Project will be constructed according to all state and county requirements including Uniform Building Code (UBC) building standards, as well as incorporating recommendations included in the site specific geotechnical survey, to protect the public and construction personnel from potential geologic hazards. Therefore, this potential impact is considered less than significant.

- d) *Would the Project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code, creating substantial risks to life or property?***

Finding: Less than significant

The surface soils have clay contents of less than 30 percent and are not characterized as expansive. Additionally, irrigation of expansive soils occurs all over the world without creating a risk to life or property. As such, this impact is less than significant.

- e) *Would the Project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?***

Finding: No impact

The Project involves the improvements of irrigation disposal for a wastewater treatment facility. Traditional irrigation disposal of highly treated effluent will occur on soils that have been evaluated and determined suitable for such purposes. Although the soils may provide additional treatment, such treatment is not a necessary component of the Project. The Project does not involve the use of septic tanks or alternative wastewater disposal systems. Therefore, no impact would occur.

3.7 GREENHOUSE GAS EMISSIONS

3.7.1 Setting

Greenhouse gases (GHG) and climate change are a cumulative global issue. CARB and EPA regulate GHG missions within the State of California and the United States, respectively. While the CARB has the primary regulatory responsibility within California for GHG emissions, local agencies can also adopt policies for GHG emission reduction.

Many chemical compounds found in the Earth's atmosphere act as GHGs, which allow sunlight to enter the atmosphere freely. When sunlight strikes the Earth's surface, some of it is reflected

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back towards space as infrared radiation (heat). GHGs absorb this infrared radiation and trap the heat in the atmosphere. Over time, the amount of energy sent from the sun to the Earth's surface should be about the same as the amount of energy radiated back into space, leaving the temperature of the Earth's surface roughly constant. Many gases exhibit these "greenhouse" properties. Some of them occur in nature (water vapor, carbon dioxide, methane, and nitrous oxide), while others are exclusively human-made (like gases used for aerosols).

The principal climate change gases resulting from human activity that enter and accumulate in the atmosphere are listed below:

- **Carbon Dioxide (CO₂):** CO₂ enters the atmosphere through the burning of fossil fuels (oil, natural gas, and coal), solid waste, trees and wood products, and chemical reactions (e.g., the manufacture of cement). CO₂ is also removed from the atmosphere (or "sequestered") when it is absorbed by plants as part of the biological carbon cycle.
- **Methane (CH₄):** CH₄ is emitted during the production and transport of coal, natural gas, and oil. CH₄ emissions also result from livestock and agricultural practices and the decay of organic waste in municipal solid waste landfills.
- **Nitrous Oxide (N₂O):** N₂O is emitted during agricultural and industrial activities as well as during combustion of fossil fuels and solid waste.
- **Fluorinated Gases:** HFCs, PFCs, and SF₆ are synthetic, powerful climate-change gases that are emitted from a variety of industrial processes. Fluorinated gases are often used as substitutes for ozone-depleting substances (i.e., chlorofluorocarbons, hydrochloro fluorocarbons, and halons). These gases are typically emitted in smaller quantities, but because they are potent climate-change gases, they are sometimes referred to as high Global Warming Potential (GWP) gases.

Greenhouse gas emissions associated with the proposed Project were estimated using CO₂ emissions as a proxy for all greenhouse gas emissions. This is consistent with the current reporting protocol of the California Climate Action Registry (CCAR). Calculations of greenhouse gas emissions typically focus on CO₂ because it is the most commonly produced greenhouse gas in terms of both number of sources and volume generated, and because it is among the easiest greenhouse gases to measure. However, it is important to note that other greenhouse gases have a higher global warming potential than CO₂. For example, one pound (lb) of methane has an equivalent global warming potential of 21 lbs of CO₂ (CCAR, 2009). Nonetheless, emissions of other greenhouse gases from the proposed Project (and from almost all greenhouse gas emissions sources) would be low relative to emissions of CO₂ and would not contribute significantly to the overall generation of greenhouse gas from the proposed Project.

The primary sources of Project-related greenhouse gas emissions are anticipated to be combustion of fossil fuels from the operation of internal combustion engines used during Project construction (portable equipment, off road equipment, and vehicles). CO₂ emissions during Project operation are expected to be low and will primarily be associated with vehicles and equipment associated with operations and maintenance of the Project.

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The following Project components have the potential to impact greenhouse gas emissions:

- Temporary Construction Activities - Including transportation related emissions
- Operations - Including transportation related emissions

Predicted Project emissions are 191.01 tons/year and are well below CARB Maximum allowable CO₂ Emissions levels of 7000 metric tons/year. Table 3.7-1 below summarizes the Murphys Sanitary District Effluent Disposal Improvement Project CO₂ emissions estimates.

**Table 3.7-1: Murphys Sanitary District Effluent Disposal Improvement Project
URBEMIS Carbon Dioxide Emissions Estimates**

Project Component	2012
Total Construction Source CO ₂ Emission Estimates (tons/year unmitigated)	190.70
Total Area Source CO ₂ Emission Estimates (tons/year, unmitigated)	0.25
Total Operational (Vehicle) CO ₂ Emission Estimates (tons/year, unmitigated)	0.06
Total Project CO₂ Emission Estimates of construction, area, and operational emissions (tons/year, unmitigated)	191.01
CARB Maximum Allowable CO₂ Emissions (metric tons/year)	7000

3.7.2 Regulatory Setting

Federal Regulations

U.S. Environmental Protection Agency (EPA): On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that GHGs are air pollutants covered by the Clean Air Act. The Court held that the EPA must determine whether or not emissions of GHGs from new motor vehicles cause or contribute to air pollution which may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision. In making these decisions, the EPA was required to follow the language of Section 202(a) of the Federal Clean Air Act (FCAA). This is because the Supreme Court decision resulted from a petition for rulemaking under Section 202(a) filed by more than a dozen environmental, renewable energy, and other organizations.

On April 17, 2009, the EPA Administrator signed proposed “endangerment and cause or contributes findings” for GHGs under Section 202(a) of the FCAA. The EPA held a 60-day public comment period, which ended June 23, 2009, and received over 380,000 public comments. These included both written comments as well as testimony at two public hearings in Arlington, Virginia and Seattle, Washington. The EPA carefully reviewed, considered, and incorporated public comments and has now issued these final Findings.

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The EPA found that six GHGs taken in combination endanger both the public health and the public welfare of current and future generations. The EPA also found that the combined emissions of these GHGs from new motor vehicle engines contribute to the greenhouse as air pollution that endangers public health and welfare under CAA section 202(a). These Findings were based on careful consideration of the full weight of scientific evidence and a thorough review of numerous public comments received on the proposed Findings published April 24, 2009. These Findings went into effect on January 14, 2010.

State Regulations

There are a variety of statewide rules and regulations which have been implemented or are in development in California which mandates the quantification or reduction of GHGs. Under CEQA, an analysis and mitigation of emissions of GHGs and climate change in relation to a proposed Project is required where it has been determined that a Project will result in a significant addition of GHGs. Certain Air Pollution Control Districts (APCDs) have proposed their own levels of significance. The Calaveras County APCD, which has regulatory authority over the air emissions from this Project, has not established a significance threshold.

Executive Order S-3-05: Executive Order S-3-05 was established by Governor Arnold Schwarzenegger in June 2006 and establishes the following statewide emission reduction targets through the year 2050:

- by 2010, reduce GHG emissions to 2000 levels;
- by 2020, reduce GHG emissions to 1990 levels; and
- by 2050, reduce GHG emissions to 80 percent below 1990 levels.

This Executive Order does not include any specific requirements that would pertain directly to the proposed Project. However, actions taken by the State to implement these goals may affect the Project, depending on the specific implementation measures that are developed.

Assembly Bill 32: AB 32, also known as the California Global Warming Solutions Act of 2006, was established in 2006 to mandate the quantification and reduction of GHGs to 1990 levels by 2020. The law establishes periodic targets for reductions, and requires certain facilities to report emissions of GHGs annually. The bill also reserves the ability to reduce emissions targets lower than those proposed in certain sectors which contribute the most to emissions of GHGs, including transportation. Additionally, the bill requires:

- GHG emission standards to be implemented by 2012; and
- CARB to develop an implementation program and adopt GHG control measures “to achieve the maximum technologically feasible and cost-effective GHG emission reductions from sources or categories of sources.” CARB issued a draft Climate Change Scoping Plan in December 2008.

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The Assembly Bill 32 Scoping Plan contains the main strategies California will use to reduce the GHG that cause climate change. The scoping plan has a range of GHG reduction actions which include direct regulations, alternative compliance mechanisms, monetary and non-monetary incentives, voluntary actions, market-based mechanisms such as a cap-and-trade system, and an AB 32 cost of implementation fee regulation to fund the program.

3.7.3 Impact Analysis

Table 3.7-2 and the section below discuss the potential Project impacts relative to greenhouse gas emissions issues.

Table 3.7-2: CEQA Checklist for Assessing Project-Specific Potential Greenhouse Gas Emissions Impacts

		Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
VII. GREENHOUSE GAS EMISSIONS -- Would the Project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) *Would the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?*

Finding: Less than significant

A URBEMIS Air Quality Model was created to estimate Projected Project-related air emissions. The predicted construction and operation-related CO₂ emissions for 2012 totaled 191.01 tons/year. This CO₂ estimate is much lower than CARB's 7000 metric ton of CO₂ per year threshold. The proposed Project will not generate GHG emission levels that either directly or indirectly have significant impacts on the environment because of low Project CO₂ emission estimates (see Table 3.7-1 above). Therefore, since the total Project CO₂ emission estimates were well below the CARB maximum allowable CO₂ emissions potential greenhouse gas emissions impacts are considered to be less than significant.

b) *Would the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

Finding: Less than significant

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As stated above, a URBEMIS Air Quality Model was created to estimate projected Project-related specific air emissions. The predicted Project emissions for construction and operations were 191.01 tons/year. This CO₂ estimate is much lower than CARB's 7000 metric ton of CO₂ per year threshold. The Project does not conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases and impacts are considered to be less than significant.

3.8 HAZARDS AND HAZARDOUS MATERIALS

3.8.1 Regulatory Setting

A hazardous material is defined by the California EPA, Department of Toxic Substances Control (DTSC), as a material that poses a significant present or potential hazard to human health and safety or the environment if released because of its quantity, concentration, or physical or chemical characteristics (26 California Code of Regulations 25501). For the purposes of this analysis, hazardous materials include raw materials and material remaining on-site as a result of past activities. Applicable regulations and policies considered relevant to the proposed Project are summarized below.

Federal Regulations

The principal federal regulatory agency responsible for the safe use and handling of hazardous materials is the U.S. EPA. Two key federal regulations pertaining to hazardous wastes are described below. Other applicable federal regulations are contained primarily in Titles 29, 40, and 49 of the Code of Federal Regulations.

Resource Conservation and Recovery Act

The Resource Conservation and Recovery Act enables U.S. EPA to administer a regulatory program that extends from the manufacture of hazardous materials to their disposal, thus regulating the generation, transport, treatment, storage, and disposal of hazardous waste at all facilities and sites in the nation.

Comprehensive Environmental Response, Compensation, and Liability Act

The Comprehensive Environmental Response, Compensation, and Liability Act, also known as Superfund, was passed to facilitate the cleanup of the nation's toxic waste sites. In 1986, the Superfund was amended through the Superfund Amendment and Reauthorization Act Title III (community right-to-know laws). Title III states that past and present owners of land contaminated with hazardous substances can be held liable for the entire cost of the clean up, even if the material was dumped illegally when the property was under different ownership.

State Regulations

California regulations are equal to or more stringent than federal regulations. U.S. EPA has granted the State of California primary oversight responsibility to administer and enforce hazardous waste management to ensure that hazardous wastes are handled, stored, and

disposed of properly to reduce risks to human health and the environment. Several key laws pertaining to hazardous wastes are discussed below.

Hazardous Materials Release Response Plans and Inventory Act of 1985

The Hazardous Materials Release Response Plans and Inventory Act, also known as the Business Plan Act, requires businesses using hazardous materials to prepare a report that describes their facilities, inventories, emergency response plans and training programs. Hazardous materials are defined as raw or unused materials that are part of a process or manufacturing step. They are not considered to be hazardous waste. Health concerns pertaining to the release of hazardous materials, however, are similar to those relating to hazardous waste.

Hazardous Waste Control Act

The Hazardous Waste Control Act created the state hazardous waste management program, which is similar to, but more stringent than, the federal Resource Conservation and Recovery Act program. The act is implemented by regulations contained in Title 26 of the California Code of Regulations, which describes the following required aspects for the proper management of hazardous waste:

- Identification and classification;
- Generation and transport;
- Design and permitting of recycling, treatment, storage, and disposal facilities;
- Treatment standards;
- Operation of facilities and staff training; and
- Closure of facilities and liability requirements.

These regulations list more than 800 materials that may be hazardous and establish criteria for identifying, packaging, and disposing of them. Under the Hazardous Waste Control Act and Title 26, the generator of hazardous waste must complete a manifest that accompanies the waste from the generator to the transporter to the ultimate disposal location.

Emergency Services Act

Under the Emergency Services Act, the state developed an emergency response plan to coordinate emergency services provided by federal, state, and local agencies. Rapid response to incidents involving hazardous materials or hazardous waste is an important part of the plan, which is administered by the California Office of Emergency Services. The office coordinates the responses of other agencies, including the U.S. EPA, the California Highway Patrol, Regional Water Quality Control Boards, air quality management districts, and county disaster response offices.

Other Laws, Regulations, and Programs

Various other state regulations have been enacted that affect hazardous waste management, including:

- Safe Drinking Water and Toxic enforcement Act of 1986 (Proposition 65), which requires labeling of substance known or suspected by the state to cause cancer; and
- California Government Code Section 65962.5, which requires the Office of Permit Assistance to compile a list of possible contaminate sites in the state.

State and federal regulations also require that hazardous materials sites be identified and listed in public records. These lists are:

- Comprehensive Environmental Response, Compensation, and Liability Information System
- National Priorities List for Uncontrolled Hazardous Waste Sites
- Resource Conservation and Recovery Act
- California Superfund List of Active Annual Workplan Sites
- Lists of state-registered underground and leaking underground storage tanks.

3.8.2 Impact Analysis

All hazardous materials are currently regulated and controlled by CalEPA in a manner that minimizes risks of spills or accidents. Any hazardous materials used in the construction startup and operation of the Project, such as diesel for equipment, will be handled according to current practices. The potential for construction and operation related impacts from hazardous materials are qualified in Table 3.8-1 and discussed below. Similar to the previous section hazards are analyzed for the Project as a whole because for all Project activities.

Table 3.8-1: CEQA Checklist for Assessing Project Specific Potential Impacts Relative to Hazards and Hazardous Materials

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
VII. HAZARDS AND HAZARDOUS MATERIALS -- Would the Project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard for people residing or working in the Project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a Project within the vicinity of a private airstrip, would the Project result in a safety hazard for people residing or working in the Project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

a) *Would the Project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?*

Finding: Less than significant

Temporary construction activities associated with the Project will involve the transport and use of limited quantities of miscellaneous hazardous substances including gasoline, diesel fuel, hydraulic fluid, solvents, and oils. These chemicals would be brought to the Project site, as well as transported along the roadways. Federal and state laws regulate the handling, storage and transport of these and other hazardous materials, as well as the mechanisms in place to respond and clean up any spills along local and regional roadways. Chemicals present on site or used for the Project will be handled by the contractor in accordance with applicable federal, state, and local regulations for hazardous substances. Therefore, the potential for impacts related to hazardous materials transport, use, or disposal is considered less than significant.

b) *Would the Project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?*

Finding: Less than significant

According to the California Geological Survey's Report, "A general location guide for Ultramafic Rocks in California", naturally occurring asbestos is present in Calaveras County near the center of the county. This area is not within the Project boundary, therefore, the risk of asbestos being released during construction activities should not occur.

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(<http://www.epa.gov/region9/toxic/noa/basic.html>) Temporary construction activities associated with the Project will involve the transport and use of hazardous materials including gasoline, diesel fuel, hydraulic fluid, solvents, and oils. Chemicals present on site or used for the Project will be handled by the contractor in accordance with applicable federal, state, and local regulations for hazardous substances, and any spills will be immediately cleaned up and disposed of in the appropriate manner. In addition, the Project site is not listed by any federal, state or local database that identifies known hazardous materials sites (EPA, 2011). Therefore, the potential for hazard-related impacts is considered less than significant.

- c) *Would the Project Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?***

Finding: Less than significant

The Project site is located approximately 0.5 miles from the Albert Michelson Elementary School. It does not involve operational activities that would result in hazardous emissions. Implementation of the Project includes measures to ensure that no hazardous agents permanently or temporarily stored or used on the site enter riparian management areas. Impacts are considered less than significant.

- d) *Would the Project be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?***

Finding: No impact

A review of the U.S. EPA hazardous materials sites database did not identify the Project sites as known hazardous materials sites (EPA, 2011). Therefore, no impact would occur.

- e) *For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard for people residing or working in the Project area?***

Finding: No impact

No public or private use airports are located within two miles of the Project site (AirNav.Com, 2011). The closest airport is Columbia Airport, which is 6.8 miles southeast of the Project site. Therefore, no impact would occur.

- f) *For a Project within the vicinity of a private airstrip, would the Project result in a safety hazard for people residing or working in the Project area?***

Finding: No impact

See response to checklist item (e).

g) Would the Project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Finding: Less than significant

Access for all fire and police emergency response vehicles would be maintained on Six Mile Road throughout the construction period. Therefore, impacts on emergency fire and police response is less than significant.

h) Would the Project expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

Finding: Less than significant with mitigation incorporated

Vegetation, trees, and shrubs surround the Project site. The Project site is surrounded by mixed oak woodland and annual grassland. Grasses dry out in the summer resulting in a slightly higher fire risk than during the wet season.

Equipment used during trenching, grading and other construction activities may generate sparks that could ignite dry vegetation on or adjacent to the construction area and cause wild land fires. The community of Murphys is served by the Murphys Fire Protection District. The closest fire station is located 1 mile away in the town of Murphys. This potential wild land fire risk is considered a potentially significant impact and requires mitigation. Risk of fire will be reduced to less than significant levels through implementation of Mitigation Measure HAZ-01.

Mitigation Measure HAZ-01: Prepare Fire Suppression and Control Plan

The Murphys Sanitary District will require the selected construction contractor to coordinate with the local fire chief and Calaveras County to ensure fire control preparations are made to reduce the risk of fires being created during construction of the proposed Project. The fire preparations will include requirements for required onsite extinguishers, roles and responsibilities of Murphys Sanitary District and the contractor, specifications for fire suppression equipment, and other critical fire prevention and suppression items. This mitigation measure will be included in the plans and specifications bid for the Project.

Mitigation Measure Implementation

- **Responsible Party:** The District would ensure that the construction contractor coordinates with the Fire department regarding fire response readiness.
- **Timing:** Prior to construction
- **Monitoring and Reporting Program:** In the event of any burn, the construction contractor will prepare an event report and submit it to the District.
- **Standards for Success:** Fire prevention

3.9 HYDROLOGY AND WATER QUALITY

3.9.1 Setting

The Murphys Sanitary District (District) WWTF and proposed irrigation disposal area are located within the Upper Stanislaus River area of the San Joaquin River Hydrologic Region and specifically within the Six Mile Creek Planning Watershed (pws); of the Angels Creek Super Planning Watershed (spws); of the Angels Camp Hydrologic Sub-area (hsa); of the Copperopolis Hydrologic Area (ha) of the Stanislaus River Hydrologic Unit (hu) (CA Department of Conservation, 2011). The entire Angels Creek spws is 25,758 acres, while the watershed area above the WWTF and associated with the Project area is approximately 20 acres (USDA/NRCS NCGC, 1999). In the vicinity of the Project area, Six Mile Creek originates as a drainage to the west of the WWTF ponds. The Project area is generally located up hill and east of the WWTF ponds. Thus, the existing ponds will likely act as a barrier preventing Project area runoff from reaching Six Mile Creek much of the time. Average annual precipitation is estimated to be in the range of 35 to 40 inches based on the Northern California Regional Rainfall Map (WRCC, 2011).

Soils found in the area are discussed in section 3.6. Generally, the soils are associated with moderate to high runoff as exhibited by their hydrologic grouping typically in group D. The hydrologic group of a soil is based on properties that affect the soil's ability to retain and drain applied water. Soils capable of rapid infiltration and drainage of surface water are placed in hydrologic group A and are characterized by low runoff, while those soils of low permeability are placed in hydrologic group D and generally characterized by high runoff. Although soils in the area are predominantly well drained, their shallowness to an impermeable zone increases their runoff potential.

The relatively shallow soils and hard bedrock in the area limit the potential for establishment of recoverable groundwater. The occurrence of recoverable groundwater is highly variable and generally confined to fractures in bedrock although some groundwater is likely present in unconsolidated sediment found in alluvial deposits (i.e. associated with creeks and rivers). Four monitoring wells have been installed in the vicinity of the WWTF, with the bottommost 20 feet generally being targeted for monitoring to evaluate groundwater conditions at the site including potential impacts from wastewater treatment and storage operations.

The following information is based on information presented in the "Monitoring Well Installation Report, Murphys Wastewater Treatment Ponds" prepared by Geotechnical Research and Development in March 2002. Two of these wells (MW-1 and MW-2) were installed in hard schist bedrock to a depth of greater than 100 feet and have concrete grout seals extending from the ground surface to at least 100 feet below ground surface (bgs). The groundwater encountered in these wells is under such pressure that the water in the wells rose to approximately 15 feet bgs shortly after installation. The remaining two wells (MW-3 and MW-4) were completed much shallower at 50 feet bgs and in semiconsolidated sedimentary or volcanic

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sediment deposits. Groundwater in one of these wells, MW-3, rose to less than 5 feet bgs, while groundwater in MW-4 remained at approximately 35 feet bgs shortly after installation .

Generally, groundwater elevations in these wells exhibit seasonal influence with lowest elevations generally reported in the late fall and highest elevations in the spring, with groundwater flow generally being toward the southwest (Condor, 2011). Monitoring wells MW-1 and MW-2 appear to be up gradient of the WWTF ponds and MW-3 and MW-4 are down gradient. Historically, all wells have detections of total coliform exceeding water quality goals, while only MW-4 has had exceedances of water quality goals for nitrate, barium, and total dissolved solids.

Secondary disinfected effluent from the WWTF will be used to irrigate the Project area. Recent monitoring of the effluent is summarized in the Table below.

Table 3.9-1: Murphys Sanitary District Effluent Quality 2009 through 2011

Constituent	Average	Range
pH	7.7	6.6 - 10.4
Total Dissolved Solids (mg/L)	334	188 - 929
Nitrate Nitrogen (mg/L)	0.40	<0.05 - 2.4
Total Kjeldahl Nitrogen (mg/L)	11	<1 - 28
Biologic Oxygen Demand (mg/L)	14	2.5 - 46

The Project area is not located in a 100-year floodplain, as determined by the Federal Emergency Management Agency (FEMA). The 100-year floodplain for Six Mile Creek occurs along Six Mile Creek Road and west of the Project area.

The irrigation system will be designed to apply wastewater at rates that do not exceed the infiltrative capacity of the soil, and the system will be operated to apply sufficient moisture for vegetation growth so that soils do not become over saturated. Thus, runoff is not anticipated from normal operation of the system. However, a runoff containment system is included, consisting of natural drainage paths and earthen trenches, to collect and store any runoff, primarily for cases of catastrophic failure (e.g. broken pipe or sprinkler head) or in cases of an unforeseen rainstorm. Any collected runoff will be stored on site for reuse and/or can be returned to the WWTF for retreatment.

3.9.2 Regulatory Setting

Clean Water Act

Waters of the United States are regulated by the Clean Water Act (33 USC 1344). The Federal Clean Water Act (CWA) established the National Pollutant Discharge Elimination System (NPDES) for regulating effluent discharges to surface waters such as the Stanislaus River. Specifically, the CWA prohibits the discharge of any waste into surface waters without a permit,

requires the establishment of water quality standards for contaminants, and grants authority to the U.S. Environmental Protection Agency (EPA) to implement pollution control programs. The EPA has delegated the authority to administer and enforce the CWA and the NPDES program to the State of California. However, section 404 of the CWA is under the jurisdiction of and administered by the U.S. Army Corps of Engineers (Corps), and regulates the discharge of fill or other materials to waters of the United States.

Porter Cologne Water Quality Control Act

The State of California established the State Water Resources Control Board (SWRCB), which oversees nine Regional Water Quality Control Boards, through the Porter-Cologne Water Quality Control Act (Porter-Cologne). Through the enforcement of the Porter Cologne Act, the SWRCB determines the beneficial uses of the waters (surface and groundwater) of the State, establishes narrative and/or numerical water quality standards, and initiates policies relating to water quality. The SWRCB and, more specifically, the Regional Water Boards, are authorized to prescribe Waste Discharge Requirements (WDRs) for the discharge of waste, which may impact the waters of the State, including National Pollutant Discharge Elimination System (NPDES) Permits for discharge directly to waters of the State and WDRs for discharge to land.

Anti-degradation Policy

In 1968, the SWRCB adopted Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California* (aka, the Anti-degradation Policy). The Anti-degradation Policy requires that whenever the quality of water is better than the water quality standards or water quality goals, and a discharge does or reasonably has the potential to degrade the high quality water, then such degradation must:

- Not unreasonably affect beneficial uses, i.e., cause the water to exceed water quality standards or water quality objectives.
- Be consistent with the best practicable treatment and control technology such that pollution or nuisance does not occur and the highest water quality is maintained consistent with the maximum benefit to the people of the State.
- The Anti-degradation Policy applies to surface water and groundwater.

Central Valley Regional Water Quality Control Board

The Murphys Sanitary District is located within the jurisdiction of the Central Valley Regional Water Quality Control Board (Regional Water Board) and within the San Joaquin River Basin. The Regional Board has developed Water Quality Control Plans and has issued water quality orders, such as NPDES permits and WDRs, to protect water quality. The Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins (Basin Plan) establishes beneficial uses and water quality standards for waters within the basin, including tributaries to listed waters. The Regional Board has also adopted WDR Order No. 5-00-0264 and No. R5-

2007-0051 to regulate the WWTF. Reclamation of discharge effluent by Hay Station property is regulated by WDR Order No. R5-2007-0050. All of these orders have requirements on the continued lawful operation of the WWTF and/or its effluent disposal and reclamation practices.

Basin Plan

The Basin Plan establishes beneficial uses and water quality standards for waters within the basin. The WWTF discharges treated effluent directly to land in the Six Mile Creek watershed, which is tributary to Angels Creek and New Melones Reservoir, which has the following existing beneficial uses:

- Municipal and Domestic Supply
- Agriculture Irrigation and Stock Watering
- Power Generation
- Contact Recreation Including Canoeing and Rafting
- Non Contact Recreation
- Cold and Warm Freshwater Habitat
- Wildlife Habitat

Additionally, the Basin Plan considers all groundwater as suitable for Municipal and Domestic Supply, Agricultural Supply, Industrial Service, and Process Supply, unless otherwise designated. In addition to establishing beneficial uses, the Basin Plan establishes Water Quality Objectives to protect the beneficial uses of the water. The Water Quality Objectives in the Basin Plan are used to establish effluent limitations (i.e., effluent water quality requirements) in WDRs.

Water Quality Orders

Generally, a single WDR permit is adopted for the treatment and disposal of wastewater; however, the Murphys Sanitary District discharge is currently permitted by three Water Quality Orders. The WDR Order No. 5-00-0264 regulates the WWTF and prescribes effluent limitations. Order No. R5-2007-0050 regulates the Reclamation Area (Hay Station property). Order No. R5-2007-0051 amends the WWTF's WDR to increase the discharge volume and period of operation to be consistent with the Reclamation Area's WDR. Discharged wastewater is filtered and disinfected secondary treated wastewater to achieve an average Total Coliform density of 2.2 MPN/100 ml.

3.9.3 Impact Analysis

The potential impacts to Hydrology and Water Quality are qualified in **Table 3.9-2** and discussed below.

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**Table 3.9-2: CEQA Checklist for Assessing Project Specific Potential Impacts to
Hydrology and Water Quality**

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
VIII. HYDROLOGY AND WATER QUALITY: Would the Project:				
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there should be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
j) Inundation of seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) *Would the Project violate any water quality standards or waste discharge requirements?*

Finding: Less than significant with mitigation incorporated

The proposed Project consists of using available District land for irrigation disposal of treated effluent, similar to disposal practices currently permitted at the separate Reclamation Area located across the street from the WWTF. Disposal will generally be through evaporation and transpiration by vegetation. This process concentrates salts in the soils, and may lead to groundwater exceeding water quality standards for salinity. Rainfall helps dilute salt added to the soil and groundwater by effluent irrigation. Effluent also contains nitrogen which if not managed appropriately could result in elevated nitrate concentrations in the groundwater potentially above water quality standards. For this Project, the risk is low because the effluent total nitrogen concentration is around 11.4 mg/L. This will be reduced by plant uptake, soil bacteria, and rainfall dilution. The water quality objective for nitrate is 10 mg/L (as N). The effluent is disinfected and its applications to soils containing some fines (silt and clay) should prevent concentration and/or migration of coliform bacteria.

Current groundwater monitoring in MW-3 down gradient of a pond used for storage of treated effluent (Pond 4) indicates groundwater nitrate and total dissolved solids (TDS) concentrations are higher than "background" monitoring locations MW-1 and MW-2, but below water quality objectives. With the addition of plant uptake of nitrogen the Project may result in similar to lower groundwater nitrate concentrations as exhibited in MW-3; however, salinity may increase as the dilution from freshly treated effluent will be much less through sprinkler irrigation than that occurring in a storage pond. It should be noted that MW-4, which is down gradient of wastewater treatment ponds, has elevated nitrogen and TDS concentrations above water quality objectives. There is evidence that groundwater in MW-4 may be in a different "hydrogeologic system" than other site wells (Condor, 2011). Thus, the unknown "background" quality of this other source of water and proximity of MW-4 to unlined treatment ponds minimize the utility of data from this well being applied to potential impacts from disposal of treated effluent.

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Implementation of Mitigation Measure GEO-01: Collection of Site Specific Soil Information, will provide the District with relevant information to determine appropriate leaching fractions for the site to minimize the concentration of salts in the soil and the groundwater. Additionally, salt balances and nitrogen balances will be developed in the Report of Waste Discharge process and permitted effluent application rates will be based on the sites ability to remove nitrogen and protect groundwater quality. It should be noted that through the process of permitting a discharge of waste, that some degradation may be allowed as long as it is treated and controlled to the best practical extent, consistent with the maximum benefit of the people of the State.

The Project will use site specific information to avoid violation of water quality standards. Therefore, the potential impact is considered less than significant with incorporation of mitigation measures GEO-01.

- b) Would the Project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there should be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?***

Finding: No impact

The presence of groundwater is highly variable in the vicinity of the Project and largely confined to fractures in bedrock. The Project will not use groundwater nor significantly affect groundwater recharge in the area. Some recharge may occur from the Project in order to minimize soil salinity. Therefore, no impacts are expected.

- c) Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?***

Finding: Less than significant

The Project contains elements that will alter the existing drainage pattern of the site in a manner to collect runoff from the disposal area. However, the design of runoff controls will be conducted to minimize runoff generation, utilize natural flow paths to convey stormwater, and minimize on or off site erosion potential. In accordance with a construction period SWPPP and/or local grading plan, stormwater discharge points will be stabilized to minimize erosion potential. No construction activities will occur within 100 feet of a surface water body.

Further, grading of the site for irrigation system installation will be conducted in accordance with a SWPPP, including erosion control measures, and will be designed to incorporate long term runoff and erosion control features as developed in the site's erosion control program. Therefore, the potential for the Project to substantially increase erosion or siltation is considered less than significant.

- d) *Would the Project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?***

Finding: Less than significant

At the irrigation area, modifications to existing drainages will have a minimal effect on natural seasonal runoff amounts or rates. Much of the irrigation area is currently covered with vegetation, and the Project will maintain vegetation cover to intercept rainfall and runoff across the entire irrigation area, which may reduce runoff in some areas. So, material changes to the rate or amount of runoff during individual storms will likely be minimal across the site. Additionally the irrigation system will be designed and operated to prevent runoff, and in the case of catastrophic event, a runoff containment system is included to capture any runoff. This system will be sized for the site's climatic conditions to prevent flooding. Therefore, the potential impact to stormwater-related flooding is less than significant.

- e) *Would the Project create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?***

Finding: Less than significant

The Project does not tie into an existing or planned stormwater drainage system. During construction activities a stormwater pollution prevention plan (SWPPP) will be implemented to minimize the risk of stormwater pollution from construction materials and exposed sediment. Operations of the irrigation area will be conducted with a long term erosion control program, to minimize erosion related stormwater pollution, and effluent applications will be contained onsite through employment of the runoff collection system. Impacts to stormwater drainage quantity and pollutant load are considered less than significant.

- f) *Would the Project otherwise substantially degrade water quality?***

Finding: Less than significant

Some degradation of water quality may occur with the Project, in compliance with Resolution No. 68-16 of the State Water Resources Control Board, also known as the Anti-degradation Policy. The Anti-degradation Policy allows for some degradation of water quality as long as the degradation does not exceed a water quality standard, provides the maximum benefit to people of the State, and the discharger implements the best practicable treatment and control of the constituent causing degradation. As such, degradation associated with the discharge from the Project will be insignificant. Thus, the potential for substantial degradation of water quality is considered less than significant.

- g) Would the Project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?***

Finding: No impact

The Project proposes creation of an Irrigation Area. No housing is planned as part of the Project. Therefore, no impact would occur.

- h) Would the Project place within a 100-year flood hazard area structures which would impede or redirect flood flows?***

Finding: No impact

The Project area is not within the 100-year flood hazard area as depicted on the FEMA Flood Insurance Rate Map, Map Number 06009C0600E. Therefore, no impact would occur.

- i) Would the Project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?***

Finding: Less than significant

The proposed Project would not impede or contribute to existing surface water flow patterns substantially to cause flooding. The facilities will be designed and constructed to contain the water without risk of flood. Therefore, the impact to people and structures as a result of flooding is less than significant.

- j) Would the Project expose people or structures to a significant risk of loss, injury or death as a result of inundation of seiche, tsunami, or mudflow?***

Finding: Less than significant

The proposed Project's inland location makes the risk of tsunami negligible. The Project does not create a large water body and risk of seiche is low and not changed from existing conditions. Although some of the area consists of Tertiary volcanic mudflows, the site is not located in an area of active landslides, and the volcanic activity has subsided. Moreover, no activities are planned to cause slope instability, and the risk of mudflow is minimal. Therefore, the risk to people and structures from these natural events is minimal. Impacts are considered less than significant.

3.10 LAND USE PLANNING

3.10.1 Setting

Land use planning information for the proposed Project site is described in the Calaveras County General Plan, revised December 1996, the Calaveras County Zoning Code, revised April 2000, and the Murphys and Douglas Community Plan, revised in 1988.

3.10.2 Regulatory Setting

The Calaveras County General Plan designates land uses in and adjacent to the Project sites as Public Services (PS), Rural Residential (RR), Rural Agriculture (RA), and General Agriculture (A1). The location of the existing Murphys WWTF is designated as public services (PS). The proposed effluent disposal fields and ground water monitoring wells would be located in Public Services and areas designated as Rural Residential/Rural Agriculture. The Project site contains the following Land Use designations: Public Services, Rural Residential and Rural Agriculture. Because under the County General Plan and the Murphys and Douglas Community Plan these designations do not all allow Wastewater treatment as a permitted use, it is likely a conditional use permit or land use/zone change will occur.

The County of Calaveras is not directly responsible for providing sewage disposal for businesses and residents; therefore, the General Plan cannot dictate the means or conditions of improving or creating sewage disposal systems (CCCD, 2006). The General Plan sets goals and policies to guide development of sewer system infrastructure. The Project will comply with the goals and policies of the Land Use and Open Space Elements of the Calaveras County General Plan. These goals that pertain to the conservation of open space and the development of wastewater treatment facilities are as follows:

Goal II-25: Provide for adequate disposal of the County's sewage to protect water supplies and public health, safety and welfare.

Policy II-25C: Encourage sewer districts in the County to improve and expand sewer systems and services.

3.10.3 Impact Analysis

The potential land use and planning related impacts for the entire Project are summarized in **Table 3.10-1** and discussed below.

Table 3.10-1: CEQA Checklist for Assessing Project-Specific Potential Impacts to Land Use Planning

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
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IX. LAND USE AND PLANNING -- Would the Project:

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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or natural communities' conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) Would the Project physically divide an established community?
Finding: Less than significant

The District's plans to build effluent spray fields and ground water monitoring wells and would not encroach on adjacent parcels. All proposed land is owned by the district, and the structures will remain onsite and will not affecting surrounding lands or communities. Therefore, the impact is considered less than significant.

b) Would the Project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?
Finding: Less than significant

Construction of the proposed storage reservoirs will not conflict with the applicable land use plans, policies, and regulations of the Calaveras County General Plan, the Calaveras County Zoning Ordinance, the Murphys and Douglas Community Plan, or any other agency with jurisdiction over the Project. A County zone/land use change to Public Service (or conditional use permit) may be required for the 20 acre parcel which currently has a zoning designation of Residential Agriculture (RA-10). All proposed sites have zones that are consistent with the intended use, as a wastewater treatment, storage and removal site. Therefore, impacts are considered less than significant.

c) Would the Project conflict with any applicable habitat conservation plan or natural communities' conservation plan?
Finding: Less than significant

The Project should not cause conflicts with local conservation banks or other conservation plans given the Project objectives and that no mitigation banks or conservation areas are in the area of the Project. For more information, please refer to the Biological Resources section of the IS/MND. Impacts are considered less than significant.

3.11 MINERAL RESOURCES

3.11.1 Setting

The property within the Murphys Sanitary District Project is located on the site of two placer mines: the Central Hill Placer Mine, patented September 10, 1879; and the Takes What's Left Placer Mine, patented March 11, 1892, and worked as one property in the 1890s. The mines are located on the Murphy, or Central Hill Channel, a Tertiary river channel enriched by numerous quartz veins in the Murphys area. This system was used until the Central Hill closed in 1898 (Wood 1948:14-15).

3.11.2 Regulatory Setting

California Surface Mining and Reclamation Act of 1975 (SMARA)

The State of California regulates surface mining and reclamation of surface mines through the Surface Mining and Reclamation Act (SMARA). SMARA provides that surface mining activities are primarily regulated by the local government who has jurisdiction over the land use of the mining Project. Calaveras County has adopted Title 17.56 of the Calaveras County Ordinance that is the local enacting ordinance regarding land use regulation and reclamation for mining operations. A copy of the ordinance is available from the Community Development Department or online at Calaveras County's webpage.

The primary regulatory activities include issuance and enforcement of conditional use permits and reclamation plans, and annual inspections and consideration of changes to reclamation financial assurances for operating mining activities. At this time, there are no mineral resources remaining in waterways around the proposed Project site, resulting from intensive placer mining during the Gold Rush days. Information on the mineral resources in the area of the proposed Project site are described in the report titled "*Mines and Mineral Resources of Calaveras County, California*," published by the California division of Mines and Geology (Condor, 2003).

Calaveras County General Plan

The County has outlined goals and policies regarding mineral resources in the Conservation element of the Calaveras County General Plan. The County has implemented the following goal regarding mineral resources in the County:

Goal IV-8: Protect public health and safety, and enable mined lands to be put to subsequent beneficial use.

Murphys and Douglas Flat Community Plan

In the natural resources section of the Community Plan, state policy is to identify significant mineral resources and appropriate measures to protect them from incompatible uses.

3.11.3 Impact Analysis

The potential impacts to mineral resources are addressed in **Table 3.11-1** and analyzed below.

Table 3.11-1: CEQA Checklist for Assessing Project-Specific Potential Impacts to Mineral Resources

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
IX. MINERAL RESOURCES – Would the Project:				
a) Result in the loss of availability of a known mineral resource classified MRZ-2 by the State Geologist that would be of value to the region and the residents of the state?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- a) *Would the Project result in the loss of availability of a known mineral resource classified MRZ-2 by the State Geologist that would be of value to the region and the residents of the state?***

Finding: Less than significant impact

According to the “*Mines and Mineral Resources of Calaveras County, California*,” and based on a review of the Calaveras General Plan, the Project will not result in the loss of availability of valuable mineral resources in the region. No placer gold remains at the Project site. There will be less than significant impacts to mineral resources.

- b) *Would the Project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?***

Finding: Less than significant

Development of the proposed storage reservoirs will not result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan. The proposed Project has Quartz-mica schist, graphic schist, metachert, quartzite, slate, Older auriferous river gavel, Lenses of recrystallized limestone, and dolomite. Impacts are considered less than significant.

3.12 NOISE

3.12.1 Setting

The existing noise environment in the vicinity of the WWTF retains a rural quality, and is characterized by light industrial sounds such as pumps in the WWTF headworks, automobile motors, and so forth. The noise environment near the proposed spray field site is somewhat quieter, with the noise of the existing WWTF operations, the chirping of birds, and other rural

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sounds. The nearest sensitive receptors are residents located approximately 1000 feet from the WWTF site and approximately 500 to 800 feet away from the closest proposed spray fields.

Examples of noise levels can be found in Table 3.13-1 and 3.13-2 below. These tables can be used as a reference of typical noise levels associated with construction work in relation to other noise producers in the environment.

Table 3.12-1: Typical Environmental Noise Levels

Noise Source	Sound Level (dBA)	Subjective Interpretation/ Human Response
Civil defense siren (at 100 feet)	130	Pain Threshold
Jet Takeoff (at 200 feet)	120	Deafening
Rock concert (at 50 feet)	110	
Pile Driver (at 50 feet)	100	Very loud
Ambulance siren (at 100 feet)	90	
Diesel locomotive (at 25 feet)	85	Loud
Pneumatic drill (at 50 feet)	80	
Freeway (at 100 feet)	70	Moderately Loud
Vacuum cleaner (at 10 feet)	60	
Light traffic (at 100 feet)	50	
Large transformer (at 200 feet)	40	Quiet
Quiet urban nighttime	40	
Soft Whisper (at 5 feet)	30	
Quiet rural nighttime	20-30	
Threshold of hearing	0	Threshold of hearing

(Source: IFC J&S, Draft Environmental Impact report NID DS Canal Flume Replacement Project, 2009)

Table 3.12-2: Noise Emission Levels

Equipment Description	Actual Measured L_{max} @ 50 feet (dBA, slow) (Samples Averaged)
All Other Equipment > 5 HP	N/A
Auger Drill Rig	84
Backhoe	78
Bar Bender	N/A
Blasting	N/A
Boring Jack Power Unit	83
Chain Saw	84

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Equipment Description	Actual Measured L_{max} @ 50 feet (dBA, slow) (Samples Averaged)
Clam Shovel (dropping)	87
Compactor (ground)	83
Compressor (air)	78
Concrete Batch Plant	N/A
Concrete Mixer Truck	79
Concrete Pump Truck	81
Concrete Saw	90
Crane	81
Dozer	82
Drill Rig Truck	79
Drum Mixer	80
Dump Truck	76
Excavator	81
Flat Bed Truck	74
Front End Loader	79
Generator	81
Generator (<25KVA, VMS Signs)	73
Gradall	83
Grader	N/A
Grapple (on backhoe)	87
Horizontal Boring Hydraulic Jack	82
Hydra Break Ram	N/A
Jackhammer	89
Man Lift	75
Mounted Impact Hammer (hoe ram)	90
Pavement Scarifier	90
Paver	77
Pickup Truck	75
Pneumatic Tools	85
Pumps	81
Refrigerator Unit	73
Rivit Buster/Chipping Gun	79
Rock Drill	81

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Equipment Description	Actual Measured L_{max} @ 50 feet (dBA, slow) (Samples Averaged)
Roller	80
Scraper	84
Slurry Plant	78
Slurry Trenching Machine	80
Soil Mix Drill Rig	N/A
Tractor	N/A
Vacuum Excavator (Vac-Truck)	85
Vacuum Street Sweeper	82
Ventilation Fan	79
Vibrating Hopper	87
Vibratory Concrete Mixer	80
Welder/Torch	74

(Source: Chapter 9.4 Construction Equipment Noise Levels and Ranges, Construction Noise Handbook, U.S. Department of Transportation, 2006)

3.12.2 Regulatory Setting

Calaveras County has implemented a noise element in the County General Plan. The primary goal of the noise element is to protect noise sensitive uses and residential areas from potential conflicts with transportation and stationary noise sources. To this end, the County has implemented noise standards for outside areas surrounding noise sensitive uses such as residential and commercial areas. Maximum allowable noise levels for residential and noise sensitive use areas are between 60 and 70 decibels (dB) (CCGP, 2003).

3.12.3 Impact Analysis

Potential noise impacts from construction activities area addressed in **Table 3.13-3** and discussed below.

Table 3.12-3: CEQA Checklist for Assessing Project-Specific Potential Noise Impacts

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
XI. NOISE -- Would the Project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
c) A substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport of public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f) For a Project within the vicinity of a private airstrip, would the Project expose people residing or working in the Project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) *Would the Project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?*

Finding: Less than significant

The proposed Project involves the use of excavators, graders, tractors, etc. The proposed Project will not expose persons to, or generate, noise levels in excess of standards established in the Calaveras County General Plan Noise Element. The construction activity would result in temporarily increased noise levels in the Project area. However, this impact is considered less than significant because construction-specific measures to reduce temporary noise impacts would be incorporated in the Project, as presented in Section 2.5, Environmental Commitments/ Best Standard Practices (Noise Control). The WWTF operational noise levels will not significantly differ from existing noise at the facilities because the treatment processes (in terms of noise emission) will generally be the same. Therefore, the potential Project-related impacts are considered less than significant.

b) *Would the Project result in exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?*

Finding: Less than significant

Construction equipment used during the Project such as excavators, graders, tractors, and other equipment may generate localized ground borne vibration or noise levels, which could be noticeable by sensitive receptors. However, this impact is considered less than significant because construction-specific measures to reduce temporary noise impacts would be incorporated in the Project, as presented in Section 2.5, Environmental Commitments/ Best Standard Practices (Noise Control). Therefore, with incorporation of environmental commitments in the Project design, vibration noise impacts will be less than significant.

- c) *Would the Project result in a substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project?***

Finding: Less than significant

Operation of the proposed spray fields and ground water monitoring wells will not significantly differ from existing noise at the facilities. Therefore the proposed Project will not result in a permanent increase in noise levels and ambient noise levels at the WWTF will remain the same. This impact is considered less than significant.

- d) *Would the Project result in a substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project?***

Finding: Less than significant

Please refer to the response to Question a).

- e) *For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport of public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?***

Finding: No impact

No public or private airports are located within two miles of the Project sites (AirNav.com, 2011). Therefore, no impact would occur.

- f) *For a Project within the vicinity of a private airstrip, would the Project expose people residing or working in the Project area to excessive noise levels?***

Finding: No impact

Please refer to the response to Question e).

3.13 POPULATION AND HOUSING

3.13.1 Setting

As of the Census of 2010, there were 2,213 people, 1,053 households, and 623 families residing in the Murphys unincorporated Census Designated Place (CDP).

3.13.2 Regulatory Setting

Calaveras County General Plan –Housing Element (1996)

Goal 1: Provide decent safe and adequate housing regardless of age, race, marital status, ethnic background, or other arbitrary factors.

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Goal 2: Increase the number of low and moderate income housing units to meet housing needs identified in this element.

New Construction Goal: 1,286 new housing unities – Affordable to very low and low income households

New Construction Goal: 2,003 new housing units affordable to moderate and above-moderate income households.

3.13.3 Impact Analysis

The potential impacts to population and housing are qualified in **Table 3.14-1** and discussed below.

Table 3.13-1: CEQA Checklist for Assessing Project-Specific Potential Population and Housing Impacts

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
XII. POPULATION AND HOUSING -- Would the Project:				
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

a) *Would the Project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?*

Finding: Less than significant

The Project is designed to ensure complete land containment of all effluent under all foreseeable climatic and ranch conditions. The effluent disposal Project will serve to back up the District's existing reclamation Project. The Project does not entail the construction of new homes or business that would promote population growth. The intent of the Project is to provide District-owned lands for spray irrigation to offset decreases in reclaimed water demand at the Hay Station property. The purpose is not to provide infrastructure for growth and the addition will not increase the WWTF treatment capacity. Therefore, this impact is considered less than significant.

b) *Would the Project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?*

Finding: Less than significant

There are no houses located in the Project footprint. The Project will not displace any housing or people nor necessitate any replacement-housing elsewhere. A less than significant impact would occur.

c) *Would the Project displace substantial numbers of people necessitating the construction of replacement housing elsewhere?*

Finding: No impact

The proposed Project will not displace a substantial number of people, nor will replacement housing be necessary. No impact would occur.

3.14 PUBLIC SERVICES

3.14.1 Setting

Services are typically provided by fire districts, park districts, public utility districts, school districts, sewer districts, water districts, and other single purpose districts in addition to those provided by the County and any state and federal agencies. Fire protection in the area is provided by Murphys Fire Districts.

3.14.2 Regulatory Setting

The following are public services goals and policies.

Calaveras County General Plan.

Goal VII-2: Adequately protect natural resources, life and property from fire hazards.

Policy VII-2A: Work cooperatively with all fire protection agencies toward managing wildland fires.

Policy VII-2B: Evaluate new development for fire safety.

Implementation Measure VII-2B-2: Require adequate access for emergency fire equipment to new development by applying standards contained in the County Road Ordinance.

Implementation Measure VII-2B-4: Apply the Fire and Life Safety Regulations of the County Code to all new construction.

Goal VII-8: Protect the general safety of Calaveras County residents, property owners and visitors.

Policy VII-8A: Maintain adequate public protection services.

Implementation Measure VII-8A-1: When reviewing development Projects, consider the impact on public protection services.

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3.14.3 Impact Analysis

The possible impacts to Public Services are qualified in **Table 3.15-1** and discussed below.

Table 3.14-1: CEQA Checklist for Assessing Project-Specific Potential Impacts to Public Services

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
XIII. PUBLIC SERVICES – Would the Project:				
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:				
Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- a) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services: Fire protection? Police protection? Schools? Parks?**

Finding: No impact

The purpose of the Project is to add effluent spray fields to the WWTF. These additions are designed to minimize any adverse environmental impacts that would occur without the changes. The Project will have no adverse impacts on fire protection, police protection, schools, or parks. Therefore, no impact would occur.

- b) Would the Project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for other public facilities?**

Finding: Less than significant

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No physical impacts to government facilities will occur during construction of the proposed Project. All public facilities will be able to maintain service ratios, response times, and other performance objectives with a less than significant impact.

3.15 RECREATION

3.15.1 Setting

The project location is on Murphys Sanitary District land and is not used as a recreational facility. The Closest recreational facility to the project site is the Ironstone Winery which hosts concerts throughout the year. The project construction and operation will not have any impact on the use of Ironstone Winery as a concert venue.

3.15.2 Impact Analysis

Impacts to recreation are qualified in **Table 3.15-1** and discussed below.

Table 3.15-1: CEQA Checklist for Assessing Project-Specific Potential Impacts to Recreation

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
XIV. RECREATION --				
a) Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Does the Project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

- a) *Would the Project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?***

Finding: No impact

The Project site does not include parks or recreation facilities. The Project components are located on parcels that are on district property. The Project will not increase the use of existing recreational facilities, nor will it require the construction of recreational facilities. Therefore, no impacts would occur.

- b) *Does the Project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?***

Finding: No impact

Please see response to question a).

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3.16 TRANSPORTATION AND TRAFFIC

3.16.1 Setting

The Murphys WWTF is located in a low-density rural residential/agriculture area that experiences light local traffic. The property is accessible by a gravel/dirt road off of Six Mile Road. The 20-acres of fields that will be used for spray fields are located adjacent to the WWTF. Construction and operation of the proposed storage reservoirs do not involve traffic and transportation issues, and will not result in changes in traffic loads or to transportation facilities. The proposed Project construction will last six months. Operation of the spray fields is negligible and will not contribute additional traffic.

3.16.2 Impact Analysis

Table 3.16-1 summarizes the level of potential impacts to transportation and traffic.

Table 3.16-1: CEQA Checklist for Assessing Project-Specific Potential Impacts to Transportation/Traffic

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
XV. TRANSPORTATION / TRAFFIC - Would the Project:				
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- a) *Would the Project conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system,***

including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

Finding: Less than significant

The current traffic conditions in the area are primarily residential and WWTF operations traffic. There will be no additional vehicle trips as a result of Project operation, and traffic volume to capacity ratios will not change. Traffic will be temporarily impacted due to construction activities associated with the Project. Increased traffic to the site is expected to occur over a six months period, but once construction is complete, it will return to current levels. Standard traffic control measures will be implemented by the contractor to maintain safe flow of traffic in the area. Therefore, impacts to traffic levels are considered less than significant.

b) Would the Project conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

Finding: Less than significant

The proposed Project will not result in, or contribute to, a degradation of Level of Service standards on either Six Mile Road or State highways 4 and 49. The proposed Project will cause short-term increases in traffic on local roads during the construction phase. Traffic levels observed in the Project area are light, and with the exception of temporary increases due to construction, are not expected to increase substantially as a result of Project activities. The potential impacts to congestion are considered less than significant.

c) Would the Project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that result in substantial safety risks?

Finding: No impact

Due to the nature of the Project, the addition of effluent disposal spray fields to the WWTF, no impact on air traffic patterns is expected to occur.

d) Would the Project substantially increase hazards to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Finding: Less than significant

No increase in hazards to design features is expected, as no changes in road structure are anticipated. This potential impact is considered less than significant.

e) Would the Project result in inadequate emergency access?

Finding: Less than significant

The WWTF's access is from Six Mile Road where entry and exit shall be kept clear of construction equipment for emergency vehicle access. The proposed sites of the effluent disposal spray fields are on district-owned property that has few obstructions to emergency

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access, and does not contribute to inadequate emergency access. Therefore, impacts to emergency access are considered less than significant.

- f) *Would the Project conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?***

Finding: Less than significant

The Project does not include development that would interfere with existing or future alternative transportation infrastructure such as bike lanes, or bus turnouts. There are no alternative transportation services or facilities on or near the Project site. The impact is considered less than significant.

3.17 UTILITIES AND SERVICE SYSTEMS

3.17.1 Setting

The Murphys WWTF is operated as a public facility to treat wastewater. The Project is being implemented to supplement the District's current reclamation operation with additional effluent disposal facilities to assure complete land containment under all foreseeable climatic conditions. The proposed spray fields property is District-owned and will have minimal effect on utilities and service systems.

3.17.2 Impact Analysis

The potential impacts to utilities and service systems are qualified in **Table 3.18-1** and discussed below.

Table 3.17-1: CEQA Checklist for Assessing Project-Specific Potential Impacts to Utilities and Public Services

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
XVI. UTILITIES AND SERVICE SYSTEMS – Would the Project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed?				

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	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
e) Result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's Projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

a) *Would the Project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?*

Finding: Less than significant

The Project is an expansion of facilities at the existing WWTF and is necessary to bring the facility into compliance with Regional Board requirements. The fields that are presently used for effluent disposal occur at the adjacent vineyards, and the landowners have requested less water be applied to their fields due to new varieties of grapes. The addition of spray fields at the WWTF will substitute for this loss of area on the vineyards. Impact would be minimal, and is considered less than significant.

b) *Would the Project require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

Finding: Less than significant

The Project involves improvements to the existing WWTF. This Project incorporates measures that will avoid significant environmental impacts, including appropriate mitigation measures where applicable. All environmental impacts associated with the Project will be avoided or mitigated to a less than significant level. Impacts are considered less than significant.

c) *Would the Project require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?*

Finding: Less than significant

The Project will not significantly increase water-resistant areas or generate increased storm water flows. Therefore, impacts to storm water facilities are considered less than significant.

- d) *Would the Project have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed?***

Finding: Less than significant

The proposed effluent spray fields on the WWTF property will not require water supplies. The addition of three spray fields will not increase water consumption. Thus, the impact on potable water facilities in the area will be less than significant.

- e) *Would the Project result in a determination by the wastewater treatment provider which serves or may serve the Project that it has adequate capacity to serve the Project's Projected demand in addition to the provider's existing commitments?***

Finding: Less than significant

The Project is an expansion of the existing WWTF to move the current reclamation operation at the adjacent vineyards to the three fields at the WWTF. Thus, impacts are less than significant.

- f) *Would the Project be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs?***

Finding: Less than significant

Construction activities are not expected to generate substantial amounts of solid waste that will need to be disposed of at a landfill. The excavated dirt from the drainage ditches will be used to construct the berms for the proposed catchment basin. Any unused excavated soil will be removed from the site. In the event that surplus soil must be disposed of, solid waste materials will be transferred to the appropriate solid waste handling facility.

The Project will minimally and temporarily increase solid waste production over the current levels, and there are facilities available to accept solid waste materials generated by the construction of the Project. Therefore, the impact from solid waste generation will be less than significant.

- g) *Would the Project comply with federal, state, and local statutes and regulations related to solid waste?***

Finding: Less than significant

The California Integrated Waste Management Act requires every county to adopt an Integrated Waste Management Plan (IWMP) that describes county objectives, policies, and programs relative to waste disposal, management, source reduction, and recycling. Title 8.12 of the Calaveras County Code outlines the standards and practices implemented to manage solid waste (CCC 2004). The Project would comply with the County's IWMP for new and existing developments. Furthermore, the removal of solid waste due to construction activities will comply with all governmental statutes and regulations, rendering the impact to solid waste statutes and regulations less than significant.

3.18 MANDATORY FINDINGS OF SIGNIFICANCE

3.18.1 Impact Analysis

The potential impacts to mandatory findings of significance are qualified in **Table 3.19-1** and discussed below.

Table 3.18-1: CEQA Checklist for Assessing Project-Specific Mandatory Findings of Significance

	Potentially Significant Impact	Less Than Significant with Mitigation Incorporation	Less than Significant Impact	No Impact
XVII. MANDATORY FINDINGS OF SIGNIFICANCE -- Would the Project:				
a) Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Does the Project have impacts that are individually limited, but cumulative considerable? ("Cumulative considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

- a) Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?**

Finding: Less than significant

As disclosed in Section 4, Biological Resources of this document, biological resources on the site that could be affected by the proposed Project include nesting raptors, migratory birds, common wildlife migration, oak trees, and possibly CNPS listed species. Recommended avoidance and mitigation, such as pre-construction migratory bird and raptor nesting surveys, no disturbance buffers, and alignment design to circumnavigate sensitive resources, are included to ensure all potential impacts are mitigated to less than significant levels.

The Project will not cause a significant change to the quality of the environment at the Murphys Sanitary District Project site. The proposed Project will not substantially reduce fish habitat or wildlife species density. In addition, the Project will not substantially reduce wildlife habitat or species. The proposed Project will not cause a fish or wildlife species population to drop below

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self-sustaining levels, or threaten to eliminate a rare or endangered plant or animal because the Project is not expected to significantly impact any locally, state, or federally rare and endangered species. Therefore, the Project will not cause a population to drop below self-sustaining levels.

As indicated in Section 5 of this document, there is a minimal potential for impacts to cultural resources based on review of cultural resource information and site field surveys (Stantec Consulting Ltd and Foothill Resources, 2011). As a result of the field surveys, three cultural resources, all related to early mining activities, were identified: the pit of the hydraulic mine itself, a mine shaft, and a water ditch. Evaluation of these resources determined that these cultural resources do not appear eligible for listing on the National or California registers, and the resources information potential has been preserved through recordation. It does not require additional study or preservation and no specific mitigation is necessary for treatment of these resources. However, the District will try to avoid these resources to the extent feasible. If additional, more substantial cultural resources are encountered during construction, Mitigation Measures CULT-01 and CULT-02 will be implemented. These mitigation measures will reduce the potential impacts to less than significant levels.

- b) Does the Project have impacts that are individually limited, but cumulative considerable? (“Cumulative considerable” means that the incremental effects of a Project are considerable when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects)?***

Finding: Less than significant

According to Calaveras County, there are no known future Projects in the Project area. The proposed Project will not contribute to cumulatively considerable impacts in the region. The Project will not induce population growth over growth currently encompassed by the Calaveras County General Plan.

Less than significant impacts to ambient noise and NO_x levels would result from the Project. With the implementation of BMPs and dust control measures and because there is a riparian buffer between both developments and the nearest neighbors, these impacts should remain less than significant. Cumulative construction related noise impacts will be transient and, with the incorporation of environmental commitments outlined in Section 2.5 of this document; these impacts are considered less-than-significant. Long-term noise will not sustain a cumulative increase from both Projects because the operation will be similar to existing noise conditions at the WWTF, which are relatively quiet.

- c) Does the Project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?***

Finding: Less than significant

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Potential impacts to human beings include increase in ambient noises during construction and increases in particulate matter (dust) in the air during construction. Both impacts are considered temporary and will be mitigated through incorporation of best management practices and mitigation measures. Specifically construction activities will be limited to daylight or normal working hours to mitigate disturbance from temporary increases in noise during construction. A dust control plan with measures that include watering down the construction area and halting construction in high winds will be implemented to reduce temporary impacts to air quality. These BMPs and mitigation measures will ensure all potential adverse effects on human beings are reduced to less than significant levels. The Monitoring, Mitigation and Reporting Program (MMRP) shall be followed to ensure compliance with said measures and evaluation studies. Therefore, the proposed Project would not have environmental effects with substantial adverse direct or indirect effects on human beings.

Stantec
MURPHYS SANITARY DISTRICT
EFFLUENT DISPOSAL IMPROVEMENT PROJECT

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Report of Waste Discharge Technical Support Document

**Murphys Sanitary District
Effluent Disposal Improvement
Project**

**Report of Waste Discharge
Technical Support Document**



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1.0 Introduction

The Murphys Sanitary District (District) owns and operates a wastewater treatment facility (WWTF) serving the community of Murphys (population around 2,200). The WWTF is regulated by Order No. 5-00-264 (WWTF Order). The permitted average dry weather flow (ADWF) for the WWTF is 0.2 Mgal/d. The current ADWF is about 0.15 Mgal/d. The WWTF provides equivalent secondary treatment via pond treatment, disinfects the effluent using chlorine, and discharges the disinfected effluent to Pond 4, which is the District's effluent storage reservoir. Effluent is reclaimed from Pond 4 by John Kautz Farms as an agricultural irrigation water supply. This reuse of effluent is permitted by Order No. R5-2007-0050 (Reclamation Order).

Based on on-going communiques between the District and John Kautz Farms, the District believes it would be prudent to add supplemental effluent disposal capacity to back up the current 0.45 Mgal/d (monthly average) of effluent reclamation capacity provided by John Kautz Farms under the Reclamation Order. This is because under current and future agricultural practices, the farming operation from time-to-time may not need the whole amount of effluent produced by the WWTF. To address this concern, the District purchased 20 acres of land adjacent to the east/southeast border of the WWTF (see Figure 1) for the purpose of providing supplemental/backup effluent disposal capacity to that provided by John Kautz Farms under the Reclamation Order. This supplemental disposal capacity will be used on an "as needed" basis from year-to-year and from season-to-season, depending on the irrigation water needs of John Kautz Farms. Potentially, the supplemental/backup effluent disposal facilities may never be used.

2.0 Purpose

The purpose of this abbreviated Report of Waste Discharge is to reopen and amend Order No. 5-00-264 to allow effluent disposal via spray irrigation on approximately 11.4 acres of the District's 20-acre parcel. Three irrigation areas are being proposed on the parcel (see Figure 1). These spray irrigation areas are setback at least 50 feet from property lines and 50 feet from drainage courses. Each effluent irrigation area will have a runoff containment system. Effluent will not be applied to these irrigation areas when:

- Soils are saturated;
- Rainfall is occurring, or forecast to occur with a greater than 30 percent probability within 24 hours; or
- Sustained wind speeds exceed 30 miles per hour.

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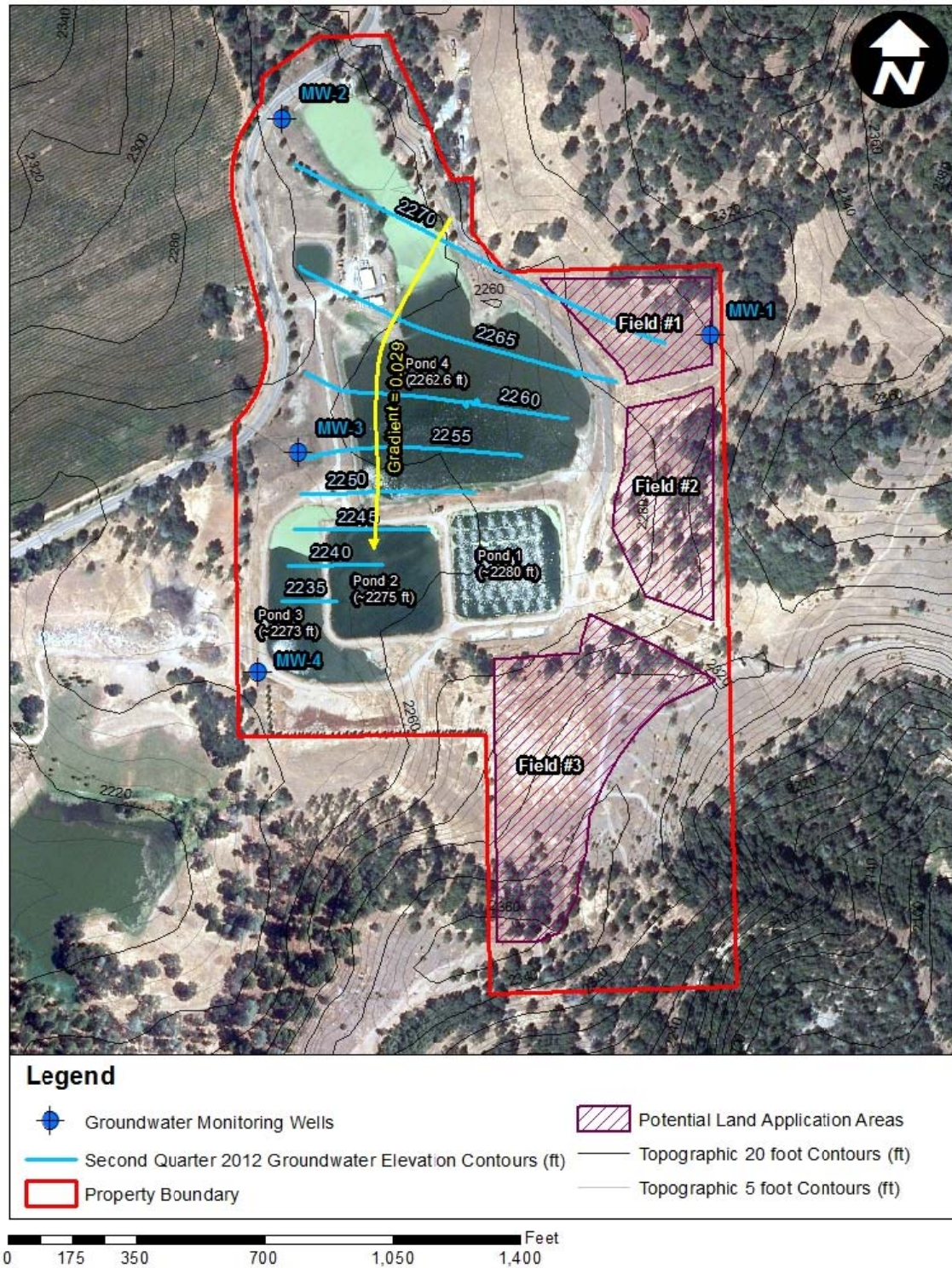


Figure 1
Groundwater Monitoring Well and Pond Locations with Groundwater Contours

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The effluent irrigation system will be designed to apply effluent at a rate less than the infiltration rate of the *in situ* vegetated soil so that effluent runoff (to the containment system) is minimized.

The addition of these three effluent irrigation/disposal areas to Order No. 5-00-264 in no way changes any other aspect of the WWTF: its design service capacity, the characteristics of the wastewater or effluent, or the planned reclamation by John Kautz Farms of all effluent produced by the WWTF. In other words, the District is adding a safety feature to a fully operational system, nothing more. As such, this Report of Waste Discharge is focused only on the matter of reopening the current WWTF Order to add this safety feature, and relies entirely on the District's Report of Waste Discharge that resulted in the current WWTF Order for all information about the District's wastewater and wastewater treatment facilities.

Based on this approach to reopen and amend the existing WWTF Order, this abbreviated Report of Waste Discharge contains the following sections in support of the information provided in Form 200:

- Description of the proposed spray irrigation effluent disposal facilities, including a Site Map;
- Water balance estimates of the effluent disposal capacity of the proposed facilities under typical and 100-year rainfall conditions;
- Discussion of site soils and hydrogeology; and
- Streamlined Anti-Degradation Analysis.

3.0 Description of Proposed Spray Irrigation Facilities

The proposed spray irrigation effluent disposal facilities consist of three spray irrigation areas comprising a total of approximately 11.4 acres on the overall 20-acre parcel, as shown on the Site Map provided as Figure 1. The approximate acreage of each area is presented in Table 1:

Table 1
Proposed Spray Irrigation Area Size

Irrigation Area	Approximate Area, acres
1	2.1
2	3.2
3	6.1
Total	11.4

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As shown in Figure 1, the spray irrigation areas are setback at least 20 feet from drainage courses, and 20 feet from property lines. Each area will consist of several spray irrigation zones designed and operated to maximize effluent disposal while minimizing runoff and weed growth (a fire hazard). Because of the elevation changes, land slopes, and soil types in each area and zone, the final design of the effluent disposal spray irrigation system will be based on the results of actual effluent irrigation field trials that will be conducted on the site once the site is permitted to receive effluent. This approach was used very successfully by the San Andreas Sanitary District. For these field trials, temporary spray irrigation equipment will be rented, installed, and operated.

Prior to conducting the field trials, the permanent effluent runoff containment systems will be constructed on each of the three effluent irrigation/disposal areas. Each containment system will consist of a 1 to 2 foot berm along the downslope edge of each effluent disposal area. Each berm will be designed to catch any incidental effluent runoff that may occur (e.g., as a result of a broken sprinkler head). Any effluent caught by the runoff containment systems will flow by gravity via valved pipes to either Pond 4 or Pond 1. The valve on each return pipe will be locked open whenever effluent irrigation is occurring. The valve will be locked closed whenever effluent irrigation is not occurring to prevent rain and runoff from entering the WWTP ponds.

Both the temporary field trial irrigation system and the permanent system (as currently envisioned) will use manually operated valves to control which irrigation zones will receive effluent and for how long. A manual valve system is appropriate for several reasons including cost control, reliability, and the fact that these effluent irrigation areas will be used very irregularly in response to the changing effluent irrigation needs of John Kautz Farms. A very simple, very reliable, and low maintenance manual system is desired in this situation until such time that this supplemental/backup effluent disposal capacity is determined to be needed on a somewhat regular basis. At that time, some elements of the design may change based on the operator's actual field experience with the system and site.

Currently, it is anticipated that the irrigated areas will not be grazed for weed/fire control because the availability of effluent as an irrigation water supply will be irregular, depending on the amount of effluent needed for reclamation by John Kautz Farms, (which will continue to be the primary effluent reclamation/disposal method). In this situation, the need for vegetation control to reduce range fire hazards will depend on the amount of effluent applied to the land, and the timing of those applications.

The final design of the irrigation pumps and the sprinkler system will depend on the results of the field trials. The irrigation zones are believed to have sufficient changes in elevation to preclude a simple one pump, one pump speed, one type of sprinkler head design. The pump(s), pump speed range, sprinkler head specification, and sprinkler head density will be balanced during final design to simplify effluent disposal system operation while maintaining uniform effluent application rates below the infiltration rates of the soils and slopes in each irrigation zone.

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The sprinkler heads will be located on secure risers to prevent potentially fast growing weeds from blocking the throw of the sprinklers (a cause of effluent runoff), to prevent animals from using the sprinkler heads as “scratching posts” (a cause of sprinkler head damage), and to allow easy visual inspection (via binoculars) of the operation of the irrigation system from the WWTF.

The pump station for the proposed effluent disposal system will be located adjacent to the existing detention basin. This pump station will be an entirely manual operation, for the reason stated for using manual control valves. This may change if this supplemental/backup effluent disposal method is used regularly.

4.0 Water Balances

As noted previously, the firm effluent disposal capacity justifying the permitted 0.2 Mgal/d flow capacity of the WWTF is provided by John Kautz Farms under the Reclamation Order (Order No. R5-2007-0050). This does not change with the proposed project, which adds supplemental/backup/redundant effluent disposal capacity to the WWTF (Order No. 5-00-264) to accommodate reasonable seasonal variations in effluent irrigation needs by John Kautz Farms. Providing John Kautz Farms with this flexibility fosters a cooperative relationship between the District and John Kautz Farms that is important to the long-term beneficial reclamation of most (if not all) District effluent per the objectives of the California Water Code and the Regional Water Board’s Basin Plan.

In this context where the proposed project does not affect the basis for the permitted capacity of the WWTF (but rather is a backup feature to it), the critical water balance issue is how much effluent can be disposed reliably on the 11.4 acres of effluent irrigation/disposal area from month-to-month under typical rainfall and 100-year rainfall conditions so that the District can evaluate monthly or water year requests from John Kautz Farms for reduced effluent flows. Specifically, the 100-year water balance (Table 2) estimates the maximum amount of effluent that John Kautz Farms could not use (i.e., leave with the District) on a long-term basis, e.g., one or more years. As shown in Table 2, it is estimated that with the proposed effluent disposal project in place and operating, John Kautz Farms could reduce its annual use of effluent on a long-term basis by 9.3 Mgal. Any permanent reduction in effluent use by John Kautz Farms should be reflected in revisions to the Reclamation Order.

The typical year water balance (Table 3) is of greatest value for evaluating short-term reductions in effluent use by John Kautz Farms. As an example, if John Kautz Farms requested to reduce Spring and Summer effluent use by 3 Mgal for any reason, then the District would evaluate the viability of that request by consulting the Table 3 typical year water balance. Specifically, the District would determine that it could easily apply that effluent to the proposed effluent spray irrigation areas in summer and early autumn. Further, the District would probably decide to apply those 3 Mgal to the proposed effluent disposal area from Pond 4 in three isolated spray irrigation events: 1 Mgal in late June (after die-off of Spring annual vegetation), 1 Mgal in early

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August, and 1 Mgal in late September. With this timing, the effluent disposal area land will be fully dry, and therefore could easily absorb 1 Mgal. Applying the effluent in isolated events minimizes weed growth (and the associated potential problems of range fires and vegetation control measures/costs).

Though Tables 2 and 3 are self-explanatory, some discussion of specific details is warranted. Typical and 100-year rainfall amounts at the WWTF site are estimated to be 34.9 inches and 63.2 inches, respectively. Total annual evapotranspiration (ET) for volunteer vegetation (primarily grassy weeds) is estimated to be 53.1 inches in a typical rainfall year, and 49.1 inches under 100-year rainfall conditions. Some of these ET demands are satisfied by rainfall (particularly under 100-year rainfall conditions). The amount of ET that would need to be satisfied by effluent irrigation is estimated to be 37.0 inches under typical rainfall conditions (see Table 3), and 29.9 inches under 100-year rainfall conditions (see Table 2).

Table 2
11.4 Acre Effluent Disposal Area Water Balance: 100-Year Rainfall ^(a)

Calculations													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Annl.
Precipitation (in)	344	7.13	10.48	11.37	10.88	10.06	5.65	2.52	0.54	0.05	0.20	0.85	63.2
Evapotranspiration (in)	3.27	1.85	1.36	1.36	1.97	2.73	3.96	5.60	6.84	7.66	7.07	5.42	49.1
ET Effluent Disposal Potential (in)	None	None	None	None	None	None	None	3.24	6.63	8.00	7.23	4.80	29.9
Volume of Effluent Irrigation Disposal (in)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	2.05	2.48	2.24	1.49	9.3

(a) 100-year/average year precipitation ratio =1.81
100-year wet season ET/average wet season ET ratio = 0.88
100-year dry season ET/average dry season ET ratio = 0.95
Kc value =7.0

Table 3
11.4 Acre Effluent Disposal Area Water Balance: Average Rainfall ^(a)

Calculations													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Annl.
Precipitation (in)	1.90	3.94	5.79	6.28	6.01	5.56	3.12	1.39	0.30	0.03	0.11	0.47	34.9
Evapotranspiration (in)	3.72	2.10	1.55	1.55	2.24	3.10	4.50	5.89	7.20	8.06	7.44	5.70	53.1
ET Effluent Disposal Potential (in)	1.92	None	None	None	None	None	1.45	4.74	7.26	8.45	7.72	5.51	37.0
Volume of Effluent Irrigation Disposal (in)	0.59	0.00	0.00	0.00	0.00	0.00	0.45	1.47	2.25	2.62	2.39	1.70	11.5

(a) Kc value = 1.0

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If 37.0 inches/year are applied to 11.4 acres, then the total volume of effluent applied to the land is 35.15 acre-feet/year, or 11.45 Mgal/year. 29.9 inches/year applied to 11.4 acres under 100-year rainfall conditions is equal to 28.40 acre-feet/year, or 9.25 Mgal/year. These annual ET demands that are not satisfied by rainfall for volunteer pasture-like grassy vegetation represent a credible estimate of the reliable effluent disposal capacities of the proposed project, i.e., about 11.5 Mgal/year under typical rainfall conditions, and about 9.3 Mgal/year under 100-year rainfall conditions (assuming the rain falls in a monthly pattern typical for the area).

In reality, the actual calculation of these effluent disposal estimates is complicated by off-setting factors as discussed in Attachment A. Some applied effluent (estimated to be 5% of the applied effluent) will percolate into the deeper soil, and some percolated rain (estimated to be 5% of the irrigation demand) will be used by plants with deeper roots at the start of the irrigation season. The net effect of these minor and off-setting factors is that the reliable effluent disposal capacity of the proposed project is estimated to be the ET demand of volunteer pasture grasses that is not satisfied by direct rainfall onto the land in real time with the ET demand. The actual reliable effluent disposal capacity of the proposed spray irrigation fields may be greater than the 11.5 Mgal/yr and 9.3 Mgal/yr estimates made, herein; but realistically, this can only be determined under actual, long-term, full-scale field trials.

5.0 Site Soils and Hydrogeology

A preliminary hydrogeologic impact assessment and effluent disposal evaluation report was prepared for the proposed effluent disposal site and is provided as Attachment A to this Technical Support Document. As noted in Attachment A, the soils on the proposed effluent disposal site are thin, and are underlain by shallow bedrock. Effluent may be able to percolate to some extent into this bedrock depending on the cracks, seams, and fissures in the rock; however, effluent disposal by percolation is assumed to be essentially zero (about 5% of applied effluent) until effluent disposal by percolation can be demonstrated by extended, large-scale field trials. During such field trials, a critical concern is whether the effluent is actually percolating into the bedrock, or whether it is simply flowing downslope along the soil/bedrock interface to surface at some local downslope location as a new “spring”.

The hydrogeology of the WWTF site, and adjacent proposed effluent disposal site, is complex, as evidenced by results from the four monitoring wells installed on these sites (see Attachment A for well locations). Monitoring Wells 1 and 2 (MW-1 and MW-2) are up-gradient of the WWTF, and the proposed effluent disposal site. Monitoring Wells 3 and 4 (MW-3 and MW-4) are “side-gradient” to down-gradient of the existing WWTF ponds, and the proposed effluent disposal site. When constructed, MW-1 and MW-2 were reported to penetrate confined aquifers under substantial pressure. This was the first encountered shallow groundwater. Considering this, deep percolation of disposed effluent would be limited by the aquitard confining the underlying aquifer, and by pressurized water in the confined aquifer percolating up towards the ground’s surface through any cracks, seams, and fissures in the aquitard. When constructed, MW-3 and

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MW-4 encountered first recoverable groundwater at a shallower depth, possibly as a result of long-term percolation of effluent from the WWTF's existing ponds, which reportedly are unlined.

Considering the physical evidence and water quality differences between the wells summarized in Table 4 (see Attachment A for a more complete discussion), the monitoring wells appear to tap into at least two different groundwater resources. Of specific note is that water quality in MW-4 has deteriorated significantly since about 2008 (see time plots provided in Attachment A) presumably as a result of leachate from sludge stored near MW-4. The general salinity and hardness (and specific ions: sodium, calcium, magnesium, sulfate, etc) of MW-4 are elevated compared to the other monitoring wells. MW-4 also has the highest iron and manganese concentrations (often associated with sludge leachate impacted monitoring wells), though these concentrations are similar to those in the up-gradient/background well MW-2. Also of note is the low DO (dissolved oxygen) and redox potential (-114 mV) of the up-gradient/background well MW-1 compared to the other wells, including sludge leachate impacted MW-4. Though MW-1 has low redox (which typically dissolves naturally occurring soil iron and manganese into the groundwater), the iron and manganese concentrations in MW-1 are less than in MW-2 (the other up-gradient/background well) which has a higher redox value (+24 mV) and a greater concentration of DO.

With these ranges and differences in first recoverable water quality, it is difficult to reach meaningful conclusions regarding what constitutes ambient/background groundwater quality. It appears that there is a range in the quality of first recoverable ambient/background groundwater quality depending on many factors including, 1) the depth of the monitoring well, 2) whether the well taps into a confined aquifer, 3) location of the well relative to overlying land uses other than the WWTF, and 4) the depth of the well's sanitary seal. Within this variability and considering the Table 4 data, the central tendency of background/ambient first recoverable groundwater quality in the vicinity of the WWTF is estimated to be as shown in Table 5.

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Table 4
Quality of First Recoverable Groundwater

Parameter	Average Groundwater Quality: March 2002-May 2012 ^(a)				Pond 4 Effluent
	Up-gradient Wells		Down-gradient Wells		
	MW-1	MW-2	MW-3	MW-4	
Well depth, ft (bgs)	135	180	50	50	---
Bottom of well, ft (MSL)	2153	2098	2206	2219	---
Depth of Seal, ft	107	153	24	24	---
TDS, mg/L	225	207	224	489	210
FDS, mg/l	169	156	171	770 ^(a)	151
Sodium, mg/L	10	13	16	31	33
Chloride, mg/L	12	11	10	10	33
Calcium, mg/L	52	29	15	74	20
Magnesium, mg/L	6	9	5	33	5
Sulfate mg/L	14	15	11	161	6
Iron, mg/L	0.75	4.30	0.18	4.91	0.80
Manganese, mg/L	0.23	0.42	0.005	0.46	0.34
Field ORP, mV	-114	24	557	257	---
DO, mg/L	0.1	1.8	4.2	4.1	---
Hardness, mg/L	147	106	58	335	80

(a) Not all averaged datasets have the same number of data, or span the 2002-2012 period. As an example, the FDS data are only available for 2012, which caused the “anomaly” of the average FDS in MW-4 (770 mg/L) to exceed the average TDS in MW-4 (489 mg/L). As noted in Attachment A, MW-4 water quality has deteriorated significantly in recent years, presumably as a result of leachate from sludge stored on the WWTF site near MW-4.

Table 5
Reconnaissance Estimate of Ambient Shallow Groundwater Quality

Parameter	Reconnaissance Estimate of the Central Tendency of Ambient Shallow Groundwater Quality
TDS, mg/L	200-250
FDS, mg/L	150-200
Sodium, mg/L	10-20
Chloride, mg/L	10-15

6.0 Streamlined Anti-Degradation Analysis

The proposed supplemental/backup effluent disposal project would apply effluent to District land that otherwise (and currently) would be applied to John Kautz Farms land adjacent to the WWTF. The proposed project does not increase or decrease the amount of effluent applied to land, the general location of effluent application (all properties are adjacent to the WWTF), or the rate at which effluent is applied to these local lands. The proposed supplemental/backup effluent disposal facilities will be used only when needed to accommodate temporary/transient changes in John Kautz Farms irrigation water needs resulting from on-going changes in agricultural operations and climatic factors. In these contexts, the proposed “as needed” application of effluent to District lands (instead of to John Kautz Farms lands across the road from the WWTF) poses no new threat to degrading shallow groundwater quality in the area compared to status quo.

As is virtually always the case when effluent is applied to land, the salinity of first recoverable groundwater underlying the effluent application site will be degraded, if the effluent is more saline than the water supply historically applied to the land. At both John Kautz Farms and the proposed effluent disposal site, Pond 4 effluent salinity (TDS ≥ 200 mg/L) is greater than rainfall salinity (TDS ~ 15 mg/L), therefore some salinity degradation of shallow groundwater is expected at John Kautz Farms and at the proposed effluent disposal facility.

Analyses of salinity degradation of groundwater are extremely complex and approximate in nature because of the many variables involved: some of which are unknown in a quantitative sense (e.g., soil dissolution rates), and/or some of which are uncontrollable (e.g., rainfall). Recognizing these limitations inherent to all salinity degradation analyses conducted before the fact of actual effluent application to land, salinity impacts to shallow groundwater from the proposed effluent disposal project were modeled assuming that wastewater is applied at agronomical rates not exceeding the amount required by the crop. The amount required by the crop was estimated to be the ET of volunteer pasture-type grasses that is not satisfied in real-time by rainfall, plus excess irrigation water applied as a leaching fraction (in this case 5%), minus percolated precipitation tapped by the vegetation, estimated to be 5% (which offsets the leaching fraction 5% as discussed under “Water Balances”). The TDS values used in the model for these analyses were 216 mg/L for background groundwater, 229 mg/L for treated wastewater, and 15 mg/L for rainwater. Based on these assumptions, the average annual concentration of TDS in groundwater underlying the disposal area, under average rainfall conditions was calculated to be 633 mg/L (Table 6), without consideration of any dissolution of soil minerals by the applied water, or any precipitation of salts in the effluent leaching fraction concentrated by ET of the overlying vegetation. The 633 mg/L estimate is based on a series of iterations where the TDS impact from one water year is used as the starting TDS of the subsequent water year. In other words, model results reflect the cumulative impact of back-to-back irrigation seasons, i.e., long-term average conditions. These iterations were continued

**MURPHYS SANITARY DISTRICT
EFFLUENT DISPOSAL IMPROVEMENT PROJECT**

Report of Waste Discharge

September 12, 2012

until the TDS concentration stabilized and stopped increasing on an annual average basis. The 633 mg/L TDS estimate is greater than ambient/background TDS concentrations (216 mg/L), and less than 1000 mg/L, the Secondary Maximum Contaminant Level (MCL) for TDS. Short term exceedances of the Secondary MCL may occur in the seasonal leaching fraction percolating to the shallow groundwater resource, particularly during the summer months. This estimate of degradation resulting from effluent disposal would be reduced if the field trials demonstrate that more effluent can be applied to the effluent disposal area than forecast herein.

**MURPHYS SANITARY DISTRICT
EFFLUENT DISPOSAL IMPROVEMENT PROJECT**

Report of Waste Discharge

September 12, 2012

Table 6
Estimated Salinity Impact on Shallow Groundwater under Typical Rainfall Conditions ^(a)

Calculations													
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Annual
Evapotranspiration (in)	3.72	2.10	1.55	4.55	2.24	3.10	4.50	5.89	7.20	8.06	7.44	5.70	53.1
Precipitation (in)	1.90	3.94	5.79	6.28	6.01	5.56	3.12	1.39	0.30	0.03	0.11	0.47	34.9
ET Volume (MG)	1.15	0.65	0.48	0.48	0.69	0.96	1.39	1.82	2.23	2.49	2.30	1.76	16.4
Precipitation Volume (MG)	0.59	1.22	1.79	1.94	1.86	1.72	0.97	0.43	0.09	0.01	0.03	0.15	10.8
Estimated Salt Uptake (tons)	0.03	0.02	0.01	0.01	0.02	0.02	0.03	0.04	0.05	0.06	0.05	0.04	0.4
ET Disposal Potential (in)	1.92	None	None	None	None	None	1.45	4.74	7.26	8.45	7.72	5.51	37.0
Volume of Irrigation Disposal (MG)	0.59	0.00	0.00	0.00	0.00	0.00	0.45	1.47	2.25	2.62	2.39	1.70	11.5
Excess Precipitation (MG)	0.00	6.83	15.75	17.57	14.00	9.14	0.00	0.00	0.00	0.00	0.00	0.00	63.3
Start TDS (mg/L)	633	716	527	289	229	229	229	303	509	796	1102	1361	Seas. Avg. 633
Final TDS (mg/L)	716	527	289	156	139	163	303	509	796	1102	1361	1537	
Start TDS (mg/L)	618	697	511	280	229	229	229	298	497	777	1077	1329	Seas. Avg. 618
Final TDS if Harvested (mg/L)	697	511	280	150	137	160	298	497	777	1077	1329	1501	

- (a) Background groundwater TDS = 216 mg/L
 Effluent TDS = 229 mg/L
 Rainfall TDS = 15 mg/L
 Kc value = 1.0
 Perennial grass ash content = 4%
 Dry weight yield = 6 tons/acre
 Dry weight stress reduction factor = 0.2

APPENDIX 3-A-3

MURPHYS SANITARY DISTRICT

Notice of Violation



Linda S. Adams
Acting Secretary for
Environmental Protection

California Regional Water Quality Control Board
Central Valley Region
Katherine Hart, Chair

11020 Sun Center Drive, #200, Rancho Cordova, California 95670-6114
(916) 464-3291 • FAX (916) 464-4645
<http://www.waterboards.ca.gov/centralvalley>



Edmund G. Brown Jr.
Governor

9 June 2011

Cynthia Trade, Director
Murphys Sanitary District
90 Big Trees Road #B
Murphys, CA 95247

Murphys Sanitary District

COPY

NOTICE OF VIOLATION, MURPHYS SANITARY DISTRICT, CALAVERAS COUNTY

Murphys Sanitary District (MSD) is regulated under Waste Discharge Requirements (WDRs) Order 5-00-264 and Resolution R5-2007-0051 for the discharge to land of reclaimed wastewater from MSD's wastewater treatment facility (WWTF). The WDRs require, in part, that certain reports be submitted, notifications be made, and that the storage reservoir maintain a minimum freeboard. In addition, the WDRs prohibit the discharge of reclaimed wastewater to Ironstone Vineyards under certain conditions. During the 2010-2011 rainy season, MSD was in violation of the freeboard requirement, the land application prohibition, and notification requirement as described below.

Based on staff's review of MSD's written notifications and its October 2010 through April 2011 monthly monitoring reports, MSD discharged reclaimed wastewater to Ironstone Vineyards before, during, and/or after rain events in October and December 2010, and in January, March, and April 2011, in violation of the WDRs. In addition, MSD failed to maintain the minimum freeboard in the storage reservoir in March and April 2011, which is also a violation of the WDRs. Further, telephone and written notification were not provided in October and December 2010, a violation of the WDRs. Specifically,

WDRs Discharge Prohibition A.9 states:

The discharge of reclaimed wastewater to Ironstone Vineyards 24-hours prior to, during, and 24-hours after any storm event or when the ground is saturated is prohibited.

WDRs Discharge Specification B.8 states:

The freeboard in the storage pond shall never be less than two feet as measured vertically from the water surface to the lowest point of overflow.

Standard Provisions and Reporting Requirements, General Reporting Requirement B.1 states in part:

In the event the discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the discharger shall notify the Board by telephone at (916) 464-3291 as soon as it or its agents have knowledge of

California Environmental Protection Agency

Cynthia Trade
Murphys Sanitary District

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9 June 2011

such noncompliance or potential for noncompliance, and shall confirm this notification in writing within two weeks.

Attachment A provides the date for each violation, as obtained from the monthly monitoring reports and written notifications.

Water Board staff is concerned about the lack of storage capacity in the reservoir during the 2010-2011 wet season. At the time of MSD's first notification (10 January 2011), MSD recorded 33.9 inches of cumulative rain, which correlates to approximately a two year return period annual rainfall¹. The WDRs require storage capacity for a 100 year return period annual rainfall. Specifically,

Discharge Specification B.9 states

The wastewater ponds shall have sufficient capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with the historical rainfall patterns.

In view of the aforementioned violations, MSD must take immediate steps to come into compliance with the WDRs, which must include completion of the following minimum steps:

1. By **13 July 2011**, MSD shall submit a *Short Term Contingency Plan* describing steps to be taken to comply with Discharge Specifications B.8 and B.9 and Discharge Prohibition A.9. The plan shall consider any and all steps necessary to prevent wastewater overflows such as: restricting water usage, correcting I/I problems in the collection system, hauling wastewater to another facility for disposal, installing temporary storage tanks onsite, and any other procedures that would prevent violations. **The Contingency Plan shall be implemented before violation of the WDRs is anticipated.**
2. By **31 August 2011**, MSD shall submit a *Water Balance Report* prepared by, or under the supervision of, a California Registered Engineer, and signed/stamped by the registered engineer. The *Water Balance Report* shall include:
 - **A water balance calculated with the following minimum information:**
 - Rainfall based on the 100-year return period total annual precipitation and the average annual precipitation as reported by the California Department of Water Resources in its Depth-Duration-Frequency Tables for the Sheep Ranch Station² (or other station approved by Water Board staff).

¹ MSD's reported rainfall was compared to California Department of Water Resources' (DWR) Depth-Duration-Frequency tables for the Sheep Ranch station, which is available at the website:
<ftp://ftp.water.ca.gov/users/dfmhydro/Rainfall%20Depth-Duration-Frequency/Rain%20D%20DDF%20Daily/DDF%20D%20B10-B20/B20%20D%20Sheep%20Ranch%20.xls>

² The DWRs' station index and Depth-Duration-Frequency tables are available at the website:
<ftp://ftp.water.ca.gov/users/dfmhydro/Rainfall%20Depth-Duration-Frequency/Rain%20D%20DDF%20Daily/>

Cynthia Trade
Murphys Sanitary District

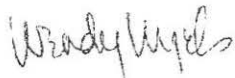
-3-

9 June 2011

- Return period ratio calculated from the abovementioned 100-year return period total annual precipitation, which is divided by the average annual precipitation for the Sheep Ranch Station.
- Rainfall distributed over the months of the year using the Sheep Ranch Station monthly average precipitation multiplied by the return period ratio.
- The monthly evaporation, precipitation, and percolation rates, including contributions from major sources such as infiltration and inflows, and storm water run-on.
- A discussion with an evaluation of the ability of the storage reservoirs and disposal area to store and dispose of wastewater in compliance with the WDRs Discharge Prohibitions, Discharge Specifications, and Provisions.

In addition, MSD must take immediate steps to update its process of notifying Water Board staff of potential or existing violations, such that it consistently complies with General Reporting Requirement B.1.

If you have questions, please contact Mary Boyd at mboyd@waterboards.ca.gov or (916) 464-4676.



WENDY WYELS, Supervisor
Compliance and Enforcement Section

cc: Brian Moss, Calaveras County Environmental Health Department, San Andreas
Ralph K. Emerson, Murphys Sanitary District,

T:\Non-15\Murphys-2010-2011Capacity.doc

CW/QS Violation IDs: 901374, 901375, 901378, 901385, 901386, 901387, 901388, 901389, 901390, 901391, 901392, 901393, 901394, 901395, 901396, 901397, 901398, 901399, 901400, 901401, 901402, 901403, 901404, 901405, 901406, 901407, 901408, 901409, 901410, 901411, 901412, 901413, 901414, 901415, 901416, 901417, 901418, 901419, 901420, 901421, 901422, 901423, 901424, 901425, 901426, 901427, 901428, 901429, 901430, 901431, 901432, 901433, 901434, 901435, 901436

APPENDIX 3-A-4

MURPHYS SANITARY DISTRICT

Notice of Violation

Central Valley Regional Water Quality Control Board

1 May 2012

Julio Guerra, General Manager
Murphys Sanitary District
90 Big Trees Road #B
Murphys, CA 95247

RECEIVED

MAY 04 2012

Weber, Ghio & Assoc. Inc.
Professional Engineers

NOTICE OF VIOLATION, MURPHYS SANITARY DISTRICT, CALAVERAS COUNTY

The Murphys Sanitary District (MSD) wastewater treatment facility (WWTF) is regulated by the Water Board under Waste Discharge Requirements (WDRs) Order 5-00-264, Monitoring and Reporting Program (MRP) 5-00-264, and Resolution R5-2007-0051 for the treatment of domestic wastewater with effluent discharge to Hay Station Ranch.

In January 2012, MSD hired a new General Manager who subsequently notified staff of previously unreported violations of the WDRs and MRP, which occurred in 2011. These violations included bypass of treatment units, on-site storage of biosolids, and improper sampling and instrument calibration procedures. In addition, the General Manager reported an increasing trend of nitrate in groundwater.

On 13 April 2012, MSD's General Manager and District Engineer met with Water Board staff, and presented an update and proposed corrective steps to address the aforementioned violations. MSD presented the following information:

1. Biosolids Stockpile Removal and Leachate: MSD has determined the location and estimated volume of the biosolids currently stockpiled at the facility. Leachate from a biosolids stockpile appears to be caused by a leak in a neighbor's irrigation system, which has since been shut off. MSD's corrective action includes the removal of stockpiles by 15 October 2012.
2. Groundwater Quality: MSD observed an increasing upward trend of nitrate concentration in well MW-4. The increase could be due to a number of factors, including the biosolids stockpiles, Hay Station Ranch's agricultural stockpile upgradient of MW-4, leachate, or the WWTF ponds. MSD's corrective action includes well re-development, removal of biosolids stockpiles, and 8 quarters of groundwater monitoring with an expanded parameter list.
3. Treatment Unit Bypass: MSD stated that between July and October 2011, the filters and chlorination system were bypassed on some dates. Bypass effluent was combined with treated effluent prior to discharge to Hay Station Ranch. MSD reported that the bypass was performed because the storage pond had been impacted by excessive rainfall during the 2010-2011 season, which was exacerbated by Hay Station Ranch's failure to

take the contracted volumes of treated wastewater. In addition, MSD stated that it could not process effluent through the filters at rates to satisfy the peak demands of Hay Station Ranch.

4. Groundwater Sampling and Instrument Calibration: WWTF personnel were not obtaining groundwater samples according to EPA guidance protocols and were not properly calibrating field instruments. MSD's corrective action includes (1) contracting with Condor Earth Technologies to henceforth obtain all groundwater samples, and (2) training WWTF employees in the proper methods, documentation, and frequencies for instrument calibration.
5. Tertiary System: To increase disposal options for treated effluent, MSD is investigating funding options for a tertiary treatment system through the State Revolving Fund and other sources.
6. Request to Revise the MRP: MSD stated that the WWTF is not a tertiary plant, and requested a revision to the MRP in order to change sampling from "continuous" to "grab" for turbidity and chlorine residual.

We appreciate the steps that MSD's has established to correct these violations, and that MSD has notified and met with Water Board staff. However, MSD has been in violation of the WDRs and MRP. Specifically:

WDRs Discharge Prohibition A.2

Bypass or overflow of untreated or partially treated waste is prohibited.

WDRs Solids Disposal Requirement D.2

Storage, use and disposal of sewage sludge shall comply with existing Federal, State, and local laws and regulations, including permitting requirements and technical standards included in 40 CFR Part 503 and the Statewide General Order for the Discharge of Biosolids (Water Quality Order No. 2000-10-DWQ) (or any subsequent document which replaces Order No. 2000-10-DWQ).

WDRs Solids Disposal Requirement D.4

If biosolids will be stored onsite between 15 October and 15 May of any year, then they shall be stored in a facility constructed in accordance with Class II surface impoundment or waste pile standards contained in Title 27 of the CCR, or similar facility approved by the Executive Officer.

WDRs Groundwater Limitation E

The discharge, in combination with other sources, shall not cause underlying groundwater to contain waste constituents in concentration statistically greater than background water quality . . .

MRP Monthly Monitoring Report A.4

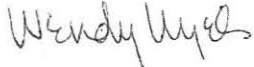
At a minimum the reports shall include: . . . A calibration log verifying weekly calibration of all monitoring instruments and devices used to fulfill the prescribed monitoring program

2255

Based on the above violations, MSD must submit a *Groundwater Quality Corrective Action Plan*, a *Storage Capacity Evaluation Report*, and *Biosolids Removal Monthly Status Reports*, which are described as follows:

1. A *Groundwater Quality Corrective Action Plan* must be submitted by **15 June 2012**, and must include the details of MSD's corrective action proposals, proposed schedule, the expanded constituent list to evaluate the increasing trend of nitrates in groundwater at MW-4, and proposed reporting.
2. A *Storage Capacity Evaluation Report* must be submitted by **15 July 2012**, and must include the following minimum information described below. The report must be prepared and stamped by a California Registered Engineer:
 - a. The current capacity and depth of each pond, and a comparison of the current conditions to that established in the WDRs.
 - b. A water balance that includes:
 - i. Rainfall based on the 100-year return period total annual precipitation and the average annual precipitation for Murphys Station, as reported by the California Department of Water Resources, or other values approved by Water Board staff
 - ii. A return period ratio, which is calculated from the 100-year return period total annual precipitation divided by the average annual precipitation.
 - iii. Rainfall distributed over the months of the year using the monthly average precipitation multiplied by the return period ratio.
 - iv. The monthly evaporation, precipitation, percolation, and discharge rates, including contributions from major sources such as subsurface inflows, contact run-on, and storm water run-on.
 - c. A capacity evaluation of the available storage compared to the requirements of the WDRs and the water balance.
 - d. A capacity evaluation of the filter units and the chlorine contact units compared to the peak demands required by Hay Station Ranch.
3. *Biosolids Removal Monthly Status Reports*, beginning with the reporting period of May 2012, must be submitted by the fifteenth day of the month following the reporting period. For example, the May 2012 status report is due by **15 June 2012**, and the last report is due by 15 November 2012. The status reports must document the progress of obtaining funding for removal of the biosolids, and the status of the removal of the biosolids.

If you have any questions or comments, please contact Mary Boyd at (916) 464-4676 or
mboyd@waterboards.ca.gov.



WENDY WYELS, Supervisor
Compliance and Enforcement Section

cc: Brian Moss, Calaveras County Environmental Health Department, San Andreas
Pat Davies, Board President, Murphys Sanitary District, Murphys
Gary Ghio, District Engineer, Weber, Ghio, and Associates, San Andreas
Sean Janssen, Union Democrat, Murphys